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THIRTY-FOURTH MEETING OF THE OIL SHALE ENVIRONMENTAL ADVISORY PANEL
Ramada Inn
Salt Lake City, Utah
October 28-29, 1981

PANEL MEMBERS AND INTERIOR OFFICIALS PRESENT

Henry O. Ash, Chairman

Brec Cooke, Utah Department of Natural Resources, Salt Lake City
Grant Davis, USDA-Forest Service, Billings
Neal H. Domgaard, Uintah County, Vernal
Lloyd H. Ferguson, U.S. Bureau of Land Management District Manager, Vernal
Carter B. Gibbs, USDA-Forest Service, Ogden
Wallace R. Hansen, U.S. Geological Survey, Denver
Andrew W. Heard, Jr., U.S. Bureau of Land Management, Denver
Charles E. Jaten, U.S. Department of Housing and Urban Development, Denver
Dewitt John, Colorado Department of Natural Resources, Denver
Patricia S. Keyes, U.S. Department of Transportation, Kansas City
Deborah M. Linke, U.S. Bureau of Reclamation, Salt Lake City
Lowell Madsen, USDI Solicitor's Office, Denver
John L. Mosley, U.S. Department of Health and Human Services
W. Jack O'Brien, U.S. Department of Energy, Denver
John Philbrook, U.S. Environmental Protection Agency, Denver
Duane I. Rehborg, Rio Blanco County, Meeker
Peter A. Rutledge, USGS Deputy Conservation Manager - Oil Shale, Grand Junction
B. Curtis Smith,U.S. Bureau of Land Management, Meeker
Richard A. Strait, U.S. National Park Service, Denver
Bruce H. Waddell, U.S. Fish and Wildlife Service, Salt Lake City

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LIST OF ATTENDEES

Federal Agencies:

Department of Energy

David Sheesley, Laramie
Sigrid Higdon, Denver

Department of Transportation

G. Ron Peters, Kansas City

U.S. Geological Survey, Oil Shale Office, Grand Junction

Eric G. Hoffman
David Oberwager
Lee Stevens
Roger A. Tucker

Oil Shale Panel Staff

Vernon Burns
Elanor David

State and Local:

Utah Department of Community and Economic Development, Salt Lake City

Gary R. Tomsic
Hank Welch

Utah Energy Office, Salt Lake City

Jim Bradley
Jeffrey S. Burks

Uintah Basin Energy Council

C. B. Henderson, Vernal

Industry:

Bio Resources, Inc.

C. Val Grant, Logan, Utah

ERT

Richard Gurske, Fort Collins

Geokinetics

Rusty Lundberg, Vernal

Occidental Oil Shale, Inc., Grand Junction (C-b)

Jim Archibald
George Fosdick
Jack Rigg

PACE Company

Tom Hendrickson, Denver

Ralph M. Parson Company, Pasadena, California

Ed O. Donnell
Marty Fabrick
Peter E. Jahn

Ray, Quinney & Nebeker

Mitchell Melich, Salt Lake City

Rio Blanco Oil Shale Company, Aurora (C-a)

John D. Baker

Western Land, Water and Power Consultants, Inc.

Paul T. Sant, Salt Lake City

White River Shale Oil Corporation (U-a/U-b)

C. E. Doney, Vernal
Corey W. Grua, Vernal
Rees C. Madsen, Salt Lake City
Lowell Page, Vernal
Robert N. Pratt, Salt Lake City

Others:

Betty Burns, Denver

THIRTY-FOURTH MEETING OF THE OIL SHALE ENVIRONMENTAL ADVISORY PANEL
RAMADA INN, SALT LAKE CITY, UTAH, OCTOBER 28-29, 1981

WEDNESDAY, October 28

Meeting called to order at 8:30 a.m. by Henry Ash, Chairman

MR. ASH: I'd like to convene this thirty-fourth meeting of the Oil Shale Environmental Advisory Panel. It's nice to be back in Salt Lake. We haven't met here in I think a couple of years. It's been over six months since our last meeting in Denver on April 2nd and 3rd. The delays have been, in part at least, because of project delays in submission and Departmental Reviews of the Oil Shale plans and programs. We have had a period of inactivity, I guess you could say. However, as we said in our September 18 memo, we are still in business and we intend to continue to carry on our responsibilities under the Prototype Oil Shale Program.

Before proceeding with our normal custom of identifying our members, I'd like to note that we have some vacancies on the Panel at present. The six authorized public member positions, which are Secretarial appointees, are currently vacant. The appointments of the former incuents were terminated in July. Replacements are currently under consideration by the Department but none have yet been appointed. We have one change in the Utah State members, Mr. Brec Cooke, on the right here, has replaced Bill Dinehart, and Brec is Associate Director of the Utah State Department of Natural Resources and Energy. There are also a few changes in Federal members, and I'll let them identify the changes as they introduce themselves, but I would like to note that Grant Davis of Agriculture has retired, and he's going to be here a little later today. We'll congratulate Grant when he gets here.

Now I'd like the members to introduce themselves and if you are a replacement or an alternate please identify who you're sitting in for or replacing. Let's start with Jack down on the end there.

Jack O'Brien, Department of Energy, alternate for Art Hartstein
Duane Rehborg, representing Rio Blanco County, Colorado
Dewitt John, Colorado Department of Natural Resources
Andy Heard, Colorado State Office, BLM, Alternate for Cecil Roberts
Curt Smith, BLM, out of Meeker, alternate for Lee Carie
Lloyd Ferguson, District Manager, BLM, Vernal, Utah
Deborah Linke, Bureau of Reclamation, Salt Lake City
Brec Cooke, State of Utah Department of Natural Resources
Wallace Hansen, USGS, Geologic Division, Denver
John Philbrook, U.S. EPA in Denver, replacing Terry Thoem
Pete Rutledge, USGS Oil Shale Office
Patricia Keyes, Department of Transportation, I cannot say who I am replacing since I cover two regions, VII and VIII
Neal Domgaard, Uintah County Commissioner, alternate for Chuck Henderson
Bruce Waddell, U.S. Fish and Wildlife Service, Alternate for Hal Boeker
Dick Strait,representing the National Park Service
Carter Gibbs, US Forest Service, Ogden, Utah. I have been an alternate for Grant Davis and I guess after today I'll be replacing him

MR. ASH: Thank you all. I'd like to review, hopefully briefly, some activities and developments since our April meeting in Denver. The Oil Shale Office will be giving us a general update on oil shale developments as well as their tract specific report, so I'll address other matters primarily related to the Panel and to the Department. One change in the charter was made in late May. It is an amendment signed by the Secretary of Interior the purpose of which is to authorize Garfield County, Colorado, to be represented on the Panel, in light of the impact on that county and the communities from development of the tracts in Colorado. Ray Baldwin, who has been their impact planner, was expected to be the Garfield member, but he's already announced that he's leaving that job the first of the year. We expect his replacement to be on the Panel somewhat later.

I mentioned the Departmental review of oil shale matters. This includes additional leasing, the function of the Panel, and a lot of other things. No decisions have yet been made on any of these matters, as far as I know. These issues, however, cannot be considered outside of developments in Congress involving oil shale. I think most of you probably are aware that the House has passed, and by a very wide margin, an oil shale bill. It is identified as HR 4053. It is sometimes referred to as an Omnibus Bill, as it covers a number of the issues which have been raised by industry and by the Department and discussed by this Panel on several occasions. In the Senate at least four bills have been introduced. One or two of these address only single issues, the others addressing similar issues to the House bill. The Interior Department has recently endorsed the Warner Bill, which is S 1484, with some suggested changes. It covers much the same items as the House bill but with what I would call more liberal provisions in some areas. The Secretary's suggested changes to that bill include a specific provision for consultation with the Governors of the states on oil shale leasing decisions. There's a news release on the back table which was put out by the Department on the Secretary's statement on that bill. Now these Senate bills were compared with the House bill by a publication in September and we put a copy of that comparison back there on the table too for inspection. Now that compares the bills as they were introduced, and does not include the various changes that have been suggested since then.

Among the other proposed changes or provisions is one by Senator Armstrong of Colorado which, if enacted, would establish an Oil Shale Advisory Board by statute. We cannot, of course, predict at this time, what will happen to that proposal. We assume that, if enacted, that body could well replace this Panel and perhaps the Regional Oil Shale Team as well, we just don't know what will come out of it. I'm not even sure whether it has been introduced formally as an amendment or exactly what the proposed language may be. However, I understand that what is being considered is an advisory body with a similar mix of Federal, State, local government, and public members, similar to what we have in this Panel, but smaller in size. So, as I say, there may be some changes in store for us and for the Panel.

Returning to specific Panel activities. We have sent out four mailings since our last meeting, the second one on September 14 announced this meeting. The Federal Register notice was published September 3, and that notice also announced the

availability of the White River DDP and the public hearings on it. The DDP was distributed to all Panel members along with the Socio-Economic Supplement and progress report on environmental programs. We put out a news release about this meeting and mailed out the agendas last week, on the 21st. On that same day we conducted a public hearing for the Oil Shale Office on the White River plan in Vernal, Utah. Transcripts of that hearing were to be provided today for the Panel members, I'm not sure whether we got them distributed or not (we have) Good. As some issues that were raised at that meeting related directly to the Socio-Economic Supplement, we were able to get copies made of some of the statements submitted at the hearing and did distribute those statements to the Socio-Economic Work Group last Friday so they at least had some advance opportunity to look at those issues that were raised at that hearing. This of course relates to the Panel's stated role of assisting the Department, specifically the Oil Shale Office, in the conduct of hearings as well as having its own review responsibilities on oil shale matters.

In addition to that hearing transcript, there are copies of the May 27 amended charter, a current Panel roster, a Wildlife Work Group report on the White River plan, an August activity report of the Oil Shale Office, and I think we added some more pieces of paper to that stack this rning.

I'd like to mention again that we will interrupt this Panel meeting at noon today for the public hearing on the same plan. There will be an afternoon session of that hearing at 1 p.m. and an evening session beginning at 7 p.m. in this same room. I would also like to ask you to please use your microphones during our proceedings, as we are going to depend on our tapes for the minutes of this meeting.

I'd like to turn now to the agenda, and will note that we will change some items on that agenda by scheduling this morning the general briefing on oil shalf activities and developments from Pete's office this morning instead of tomorrow morning. The reason for this is that some of our work groups would like to meet today before they make any reports to the Panel, so we will schedule them all for tomorrow morning. With that, I'd like to turn to the first major item on the agenda, reports from Interior officials, the first one being Pete Rutledge, the Geological Survey Deputy Conservation Manager, Oil Shale. Pete.

MR. RUTLEDGE: Thank you, Hank. A tremendous amount has happened since the Panel last met in April, especially in terms of paper work of course that I deal with and physical development at least in Colorado. Everybody does get a copy of our monthly report, and that's the sum total of everything that has happened since then. I'm not going to go over all of it, but I am going to try to summarize some of it. It's going to be difficult enough. Also we thought it might be worthwhile to provide the Panel with a visual overview of what is going on physically, and that's the slide show we have and we will get into that whenever Hank has it scheduled.

To get right into this in terms of general items, we did have Secretary Watt out in the oil shale area. He did give a whole day to touring, it was one heck of a day, we did it by helicopters, three of them, with a relatively small group. He did have the opportunity to visit Tract C-a and C-b, the Union development, and

the Colony development, spent about 2 hours on each site. He had an underground tour at each site, so he is certainly well aware of what the mining technology would be a briefing and also a visit to the surface facility. I hope he took away a pretty good knowledge of what is going on and what the scope and the problems of oil shale are.

I usually say something about personnel and where we stand. We have managed to add a second hydrologist (to bug George back there). The whole subject of hydrology just grew too big for one person to handle. A fellw by the name of Mike Doneen, who came to us from the Water Resources Division of the Survey, a well-regarded young man. Unfortunately, after all of our efforts and going through many sets of people and many years to establish a, if only a monitoring program that was scientifically designed and based on statistical analysis, the Wiz we did find with the Geologic Division, got a wonderful offer for Aramco and disappeared last month. So we are in the throes now of trying to find an exceptional mathematician and statistician.

As far as budget and personnel authorizations go, it's tight, but as far as I can tell right now, we do remain in position at least for another year with enough slots and enough money to cover the disciplines as we figure are needed, so we are hanging in there, and again I mention the math-stat position, that is critical, because really obtaining all the input data, doing all the verification and seeing to it that it gets put out to all the users. We have moved now to a pretty well computer-based program, like if a researcher now who wants data on air quality, we can provide them with a tape in standard format with all that data, to which we will hopefully be able to do some screening and data verification and also add latitude and longitude for location nationally.

Getting into what's happened on each of the lease tracts, starting with Utah, on September 1st, the final Detailed Development Plan was submitted, and of course that's the subject for discussion today. Since that has happened we have done a biological assessment of that plan, and have received concurrence with regards to endangered species and the method of proceeding with development of U-a and U-b from the Fish and Wildlife Service. We have discussed and concurred with the lessees on plans to relocate one air quality station to a better site. The lessess have submitted a socio-economic report to go with the Detailed Development Plan, but again it is separate from it. There have been a couple of special land use permits or whatever they're called now, BLM actions, but Lloyd will take care that when he gets up.

As far as Tract C-b goes, with regard to the long-promised very detailed revised detailed development plan, George Fosdick is with us and will have some words to say on where we stand with that later on in the meeting. Suffice it to say that we've been in the process of reviewing draft sections, and also reviewing an accumulation of those draft sections in an attempt to make it the best possible document.

The work force on C-b did get to a peak employment of about 678, that includes all contractors during September. It's now about 460. The three shafts on C-b

all are down to total depth now. The ventilation escape shaft is completed to its design depth, which is 1,617 feet, that was done in August. A couple of things happened with regard to that, and I might as well cover it. Initially in the plan, initial development was to occur from that shaft. It was thought that being a small shaft that would be down first. Well experience in sinking through all that water, and that's the shaft that made the most water, simply delayed that. Additionally, if you will remember the mine was classed as gassy, which in effect means you're not going to develop off of one shaft. You have to have two. So a decision was made based on the cost of pumping water from that shaft and the fact that under a gassy mine plan that shaft would not be needed until late 1983 to remove electrical equipment as much as possible and simply allow that shaft to flood. It's a standard process, it's relatively well known how to recover it, and both in the lessee's commitment and our approval is the requirement to recover that shaft beginning in 1983. So it currently is flooded up to about 477 feet, this has cut the pumping down from some 1,000 gallons a minute, 1,500 gallons a minute, to about 500, and also allows us to reinject all the excess water produced instead of discharging it or sprinkling with it. The service shaft, which is a 34-foot-diameter large one, is down to its design depth, that was completed in April. The shaft sinking equipment has been removed and steel has been installed. The production shaft, which is the 29-foot-diameter rock-handling shaft, is down to design depth of 1,867 feet, and the last blast was taken out of that on September 29. The shaft-sinking equipment is being modified for installing steel in that shaft and also in both of those big shafts the permanent hoisting equipment is being installed in the shaft towers. Sub-mine water pumpage now has been reduced, it's about 500-some gallons a minute. Two additional reinjection wells were drilled but they will not be needed immediately. The existing one can handle the total production.

The surge plant was placed in operation, it is currently operating satisfactorily. Brown and Root, the contractor, has cleared a large area west of the shaft, I think you will see that on some of the slides later. Excess cut material has been used to fill the levels around the shaft for the mine support area.

The Meeker to tract, 138-kV line has been completed, it will be energized later when hoist power is needed. Air quality and meteorological stations have all been upgraded with the latest state-of-the-art equipment. Recently we have surveyed, or the lessees have surveyed Piceance Creek downstream from Stuart Gulch for fish population, and again most of the trout found were found near Stewart Gulch and the tributary ponds not necessarily in on Piceance Creek.

And as of September, if you're interested in the permit situation with oil shale, 137 permits have been obtained for construction, 45 on air, 53 in water, land is 16, there are two that have to do with the Resource Conservation and Recovery Act, and miscellaneous, 21. You've got to remember a lot of those air quality permits are multiple-point permits.

Moving on to Tract C-a, I'll cover first the situation around a letter which was distributed this morning. It's from Rio Blanco Oil Shale Company to me and it's dated October 1. Now prior to that, if you'll remeer, we reviewed the Tract C-a Lurgi demonstration program and we approved on, I think the last of May but anyway as scheduled, we approved that plan. Since that time they announced that

they would hold that in abeyance,for the lack of better words, and go ahead with a small pilot plant for the Lurgi technology in Harmerville, Pennslylvania. Also the modified in-situ plan is coming to completion now with it being announced that there will be no further modified in-situ retorts burned after retort 1 is completed. In view of all that we wrote them a letter saying what are your plans to meet diligence requirements of the oil shale lease in this interim period that seems to have been defined? There are going to be two responses to that. One, the letter which you have, and secondly, a plan submitted for approval to cover that period of time. You can review this letter before you. We are again waiting on that plan. I do note that in the letter Rio Blanco said that they were keeping up with diligence, the budget for 1982 will be the second largest in the project's history so far. You can read that. If there are any questions on that I can respond to that at any time.

But getting into the physical developments that happened. In April leak testing and sealing of retort 1, which was the second retort they burned, was completed. It actually carried into June before that was finally done with a final leak test. We have a small research program under way dealing with the subject of retort abandonment on Tract C-a, it's in cooperation with the Bureau of Mines and the lessee, and that involves the excavation of a trench which is backfilled with in this case, they used raw shale as a substitute for spent shale, and using Lurgi retorted shale grouting that trench. That's been put in place, the trench has been grouted, and it has been excavated and the final report isn't out, the question is how well that grout penetrated the material in place. Initial visual observations from it showed good penetration. That is an interesting way to solve an environmental problem and perhaps also solve a resource recovery problem if we can restabilize burned-out modified in-situ retorts using some kind of grout material. If that's possible, it should cure the water problem and it may also provide for significant increased recovery because you don't have to depend on such big pillars.

Retort 1 was ignited. There have been really no problems with the retort, there's been some problems with the physical plant. Some of the material ate out a rather cheap stack so they had to go to some flaring for some time until the stack could be repaired, then it was put back on line the 22nd of this month. So far the retort is getting pretty close to the bottom and it should be completed out by at least the end of Noveer. The production estimates made prior to the iinition of that retort the lower bound was 17,000 barrels, the upper bound was 25,000 barrels. To date they have passed the lower bound of production and we don't know exactly how close it will get to that 25,000 barrels;that remains to be seen.

Hank, unless everybody has carefully read our monthly report, all the good information in there, and has comments or questions on that, that about completes my report.

MR. ASH: Thank you, Pete. Any questions from Panel members for Pete? Okay, if not, we'll go then to Curt Smith reporting for Lee Carie, the District Manager at Craig, Colorado. Curt is Area Manager at Meeker, right?

MR. SMITH: That's right, Hank. As far as the BLM processing of permits for oil shale development for C-a and C-b, it's actually been fairly minimal since April. They did, as Pete said, complete the power line to C-b, the county has just let a contract for the C-a to Rangely road and they have started construction on that, well they have been woriing approximately 2 or 2-1/2 weeks on that road. Other things that we're working on in conjunction with oil shale, we're continuing with wildlife mitigation with both C-a and C-b and the Oil Shale Office, one of those being, they're installing I think or will be fairly soon, some reflectors on the highway to help cut down deer losses by vechicles. Supposedly this technique was used in Switzerland and Sweden and was fairly effective, the process is that when the lights hit the reflectors they shoot a beam back up on the hillside and kind of act as a fence to deter the animals from crossing the highway that a vehicle is going down. Also, to the southwest of the C-a tract on the Ertl oil shale claims Berge Exploration under contract to Phillips Petroleum is still doing a substantial amount of core drilling to find out what reserves they have. We have issued some rights-of-way and some temporary use permits to Berge for that work. We were also contacted just a week or so ago by Western Slope Gas to install a 12- to 16-inch natural gas pipeline from Piceance to Parachute Creek to service the Chevron, the Union, and some of those other developments over there, so we will be starting to work on that as soon as we get an application.

To bring you up to date on the LaSalle pipeline application, the draft environmental statement is out, we have seen a copy of the draft construction plan and commented on that and hope to finalize that sometime in early '82.

We've also had direction, tentative direction, I'll put it that way, to be ready to issue some additional prototype oil shale leases sometime in '83, probably a multi-mineral type tract, or possibly two. We feel that the existing land use plan is adequate to allow for that additional leasing, since those particular tracts were addressed both in the '75 land use plan and the update we just completed in February of '81. We're going to propose to issue a contract to do a detailed site-specific analysis on whatever tracts are selected when that time arises. We've also issued, I think, four different contracts to gather data so we can update our land use plan. One of those being a hydrology contract, one a cultural contract, one a T&E, threatened and endangered species, vegetative-type contract, and we've also issued one to the Fish and Wildlife Service to computerize the resource data for that land use plan. We've also had direction in the '82 advices to process four sodium preference right lease applications in the Piceance Basin. All four of those are in close proximity to either the C-a tract or the Multi-Mineral Horse Draw site that's under an agreement with the Bureau of Mines and the BLM.

I guess that covers most of the activities we've got going. If you have any questions, I'll be glad to answer them.

MR. ASH: Curt, I have a couple. When you say "process those preference right lease applications" what action is pending on those now?

MR. SMITH: What we'll be doing, Hank, in FY82 is actually doing a site-specific analysis on each of those tracts, and there's four of them. After FY82, probably

the beginning of '83, there will be public hearings and this type of thing, if, in fact, a determination is made that the sodium is the mineral which should be mined out of those areas.

MR. ASH: Thanks. One other question. The road, the Rangely to C-a road, has been quite a controversial matter in the past. I am interested to hear that actually a contract is let on that. What route is that following?

MR. SMITH: Pete asked me that this morning. If I had thought I would have brought a map. It's actually the one that will go over 84 Mesa, drop down and across Duck Creek, up Trail Canyon and then drop into Spring Creek and then it will follow the original alinement that was back in, I think, '75 or '76 and into Gillam Draw and into Rangely. The total length of that road will be approximately 30 miles.

MR. ASH: Thank you. Are there other questions for Curt? Okay, then Lloyd Ferguson, Vernal, Utah District Manager for BLM.

MR. FERGUSON: Thank you, Hank. Pete indicated that we have been processing some temporary use permits with regards to continued feasibility, etc., for the White River Shale. We had one for relocation of an air monitoring station and in conjunction with that we also issued a right of way to provide access to that site. Another temporary use permit, or TUP as we refer to them, was for storage of some 300 tons of shale that they removed from their holdings. This is off site, incidentally, but it's for use in their studies. We also issued a TUP for core testing along the proposed road into the plant site to allow them to study the inner fracture of the road bed and like Colorado, we've been involved in a number of contracts that were issued the latter part of FY81 and we have been conducting for some time inventories pertinent to the updating of our land use plan which will cover the bulk of the oil shale area, specifically that area in which U-a and b are located, we'll be doing a Resource Management Plan with the environmental statement due for completion in the fall of '84. Those inventories and contracts pertinent to that are not only to support that effort but also the proposed - and I say "proposed" because the only one who has said much about it is the Secretary, indicating that there would be a permanent program, but we don't know what it's going to entail yet.

They also are, in conjunction with these contracts that is, are in conjunction with an on-going effort that we have in the Uintah Basin, which we refer to as the Uintah Basin Synfuels Environmental Statement, and that is to cover development of seven proposed leases issued by the State of Utah requiring rights of way across public land, this is a joint effort by the State of Utah and BLM and some of these contracts, not all of them but some of them, are a two-phase type contract in which they provide the information for our Uintah Basin EIS first and then it goes on to complete that regional aspect necessary for the permanent program.

In the past at least, the Panel has been interested in a number of other things going on in the same general area. I might tell you that the Bonanza Powerplant construction effort has started and is moving forward in spite of the complications Mother Nature has put in the way of both people working out there in the

form of a little heavier than normal precipitation. Many of their excavations turned into lakes of varying sizes. We are proceeding with rights-of-ways in conjunction with the State of Colorado, BLM in Colorado, that is, rights-of-ways for the railroad to deliver coal from the mine near Rangely to the plant site. The White River Dam and the preliminary final EIS is being routed internally for review. We will await the biological opinion from the Fish and Wildlife Service expected in January prior to issuing the final Environmental Statement. We have a meeting today in Vernal to discuss possible mitigation on that. A number of road rights-of-way have been issued and the County has awarded contracts and are constructing roads in this general area, basically from Vernal to Bonanza area, including a bridge across the Green River, and we have also completed an environmental analysis of a proposed road from Bonanza to Duck Rock, is what we call it, which would be about the point where the proposed road into the U-a and U-b plant site would take off. Again that is a county effort. The County has been working with us for some time on all of these roads, they are not necessarily pertinent just to U-a and U-b but to support the conventional oil and gas drilling and other things that are going on in that general area, and U-a and U-b are right on the way.

If there are no other questions, why I guess that would conclude my report.

MR. ASH: Thank you, Lloyd. Any questions for Lloyd? If not, we will proceed to the next item, which is initial discussion or presentation on the White River Shale Detailed Develpment Plan, and Pete, do you want to introduce that? They will need a few minutes to set up - can they start setting up while you introduce it?

MR. RUTLEDGE: Well the introduction is going to be short, Hank. Mr. Pratt and Rees will be doing the presentation, so we will go right on.

MR. ASH: Then we will take a brief- 5-minute break, while they get set up.

Break

MR. PRATT: We will give you a brief overview of the White River Project as well as give you an opportunity to ask any questions you might have. We have a number of people here with us today to do that. I'm sure all of you have known, if you've read those two big books of the DDP all about it. We just hope to refresh your memory a little bit this morning of really what's presented in those big volumes. I should also mention, as you may be aware, that the White River Shale Oil Corporation , basically we're the ones making the presentation here today we're the operating and management company for the White River Shale Project, which is owned by Sohio, Standard Oil of Ohio, the Phillips Petroleum Company, and Sun Oil Company, basically through their subsidiary Sun Energy Development Company. They are the three companies that own the White River Shale Oil Corporation, each one of them owning equal thirds. But during the project we'll be the one's that will be responsible for the management, construction, and then operation of the facility.

This morning as you can see on the slide presentation in front of us the background and overview will be presented to you by Jim Godlove. Maybe you know Jim already. Jim is our Director of Environmental Affairs for White River. The mining and materials handling discussion will be handled by Lowell Page, he's our mining manager, the discussion of the surface facilities will be presented to you by Chuck Doney. Chuck is our Vice President and Project Manager. We'll then have Jim come back and discuss the environment again, and then Rees Madsen, who is Vice President of Administration will discuss the socio-economics, and then I'll come back with a conclusion, either to say Amen or to help clarify anything that you really have some further questions on that you would like to ask of me.

Also today we have with us to help answer any questions, to give you as much of the background on this as we possibly can, we've got Bob Gilbert, who is our Community Development Specialist located in Vernal with White River, Bob Dudiak of Sohio has been Chairman of our Socio-Economic Committee of the White River Project. We have three people from Parsons in from Pasadena, we have Ed O'Donnell. I should have these fellows stand up. Ed is Project Director for surface facilities. Peter Jahn is Project Director for Materials Handling, and and Marty Fabrick, who is Project Director for the Environmental Activities, and Bob, do you want to stand up for a moment, Bob Dudiak. Cy McKell hasn't arrived yet. He's also a consultant for us on our reclamation activities and he's the Vice President for Research on Native Plants, formerly associated with Utah State University. So Jim, do you want to take off.

MR. GODLOVE:I thought of a presentation to give you some insight into White River's background and also what White River's plans are, commencing with the development of a and U-b. I'm sure you all know that we're here to talk about the White River Shale Project, which was established in 1974 to plan for and implement the development of Federal prototype oil shale lease tracts U-a and U-b. White River Shale, as Mr. Pratt mentioned earlier, is an equal partnership between three major energy companies, Phillips Petroleum, for Sunoco Energy Development, and Sohio Shale Oil. Tract U-a is leased by Phillips and Sun, they obtained that for a bonus bid of $75+ million. Tract U-b is currently leased by Sohio Shale Oil, it was obtained for a bonus payment of $45.1 million. As he mentioned, White River Shale was established to plan for the development of the project and it will involve the joint participation of the three companies. This gives everybody an idea of where White River is located. It is in the Uintah Basin of Utah about 50 miles southeast of Vernal, and about 5 miles south of Bonanza. The tracts are located contiguous to the south of the White River.

Our oil shale development, as I am sure everybody in the room knows, commenced with a detailed 2-year environmental baseline study. The purpose of the study was to characterize the environment on and near the two tracts. This slide gives you an idea of the exhaustive nature of the environmental program in which monitoring sites were located in many areas on and surrounding the two oil shale properties. The program involved extensive air quality and meteorological and climatological studies, and a number of these stations were installed during the baseline program, which was conducted from late 1974 through the end of calendar year 1976. We also investigated the surface water and groundwater hydrology on and near to the tracts. We looked into the terrestrial biology as depicted by

this field map. We looked at the aquatic biology as well. This is a slide taken in the White River near Ignacio Stage Stop. We investigated the cultural and historic resources on and near the tracts. This happens to be a slide of the Ignacio Stage Stop which is located immediately north of the property. And the paleontological and archeological resources as well. Very extensive soils and geological investigations were conducted on tracts. This is a slide of the geological investigation program that was conducted back in 1976. And the vegetation resources on and near to the tracts were characterized as well.

Following the completion of the environmental baseline report and the publishing of that report in 1977, I'm sure as you all know, White River Shale went into suspension initially because of environmental problems and finally because of title-related problems. The environmental program did continue, has continued in the interim, and it is currently still in operation. We feel that we are in a very good position now to proceed with the development of the property. This slide gives you an indication of what White River's development philosophy will be, and I'll go through it very quickly. First of all, we do plan the unitized development of the two tracts. These tracts will be developed as a single project. The project will be developed in three distinct phases. The first phase will be a demonstration module, followed by two commercial phases. We will be using conventional rooand-pillar mining technology and a mix of surface retorting technologies. The project will be producing up-graded shale oil. We will be disposing of the processed shale on the surface of Tract U-a in what is known as Southam Canyon. Of course as required by the terms of our lease, we will be rehabilitating all disturbed areas on the tracts. We plan to discharge no water from the project. Like I said, we plan not to, all things working together. We will be instituting a very detailed impact monitoring program to identify the environmental impact of the project and to determine appropriate mitigation procedures. And of course White River Shale is proposing to use the State of Utah's White River Reservoir, to be constructed immediately north of the properties to supply water during our commercial phases.

This is a slide taken directly from the Detailed Development Plan which emphasizes White River's schedule for developing the project. It does show that we do intend three very distinct phases. Phase 1 is the developmental phase, and Phase 2 a demonstration phase, and Phase 3 is the commercial development. This is presented in project years. If all goes well, the Detailed Development Plan should be approved by about the end of this year and development on tract commencing in early 1982. Engineering on the project has already begun. iine development would begin in late '82 or early 1983. As I mentioned, construction could begin as soon as the very first part of 1982. Initial operation would begin in the middle of project year 5, that would be during 1986. The Phase 1 facilities will be brought up to full production, operated for a period of time, based upon the information that we receive during this phase of operations, we will then enter the Phase 2 development, which will begin with engineering and mine development of the commercial facilities. All of this will lead to an ultimate production capacity of about 106,000 barrels per day in late 1993 or early 1994.

Well that is a brief overview of what White River's plans are to develop the properties. At this point I'd like to turn the program over to Lowell Page, who will discuss the mining and materials handling portion of the project.

MR. MOSLEY: I have one question there. You used the term "unitized process". I process". I was wondering if you would compare that with the operation of C-a and C-b. How does that differ in that process?

MR. GODLOVE: John, what we mean by unitized development is that White River Shale, the owner company, does hold the leases to both Tracts U-a and U-b, whereas the Colorado development holds single properties, and so what we intend to do is to develop U-a and b as a single project, basically development on one applies to development on either or both.

MR. RUTLEDGE: Maybe I can amplify that a little bit. Lowell Madsen isn't here right now and I know he was going to bring me up to date on where we stand on that. Interior considered the tracts in Utah and analyzed it and found that one 5,000-acre tract probably would not be sufficient, have sufficient recoverable resource, to amortize a plant, and that is the reason the two tracts were put together concurrently, and if you look at the '73 EIS it's clear in there that right from the start Interior anticipated that Tracts a and b would be evellped as a single project. In effect, all of the resource work since then says that was a decision that had to be. There's not enough on one tract. It's been decided to put together a joint operating agreement which is in the throes of the lawyers now. Really it doesn't do much more than the leases would now with that anticipation that Interior expected it to be operating as a unit. It just clarifies that. So it isn't any kind of a different process or anything else. It's just both tracts to provide sufficient years of resource to amortize the plant.

MR. PAGE: Well hello again? I think that we've gone thorough this a few times before, and if you will bear with me we'll take another look at what the current DDP outlines in the context of mining and the materials handling section. You saw this slide a little earlier. On this one I would like to point out the black dots are the core tests that we drilled over the course of a few years. There's a total of 25 where we have cored the oil shale zone and from that determined the geology of the area, and the rock mechanics. We have done all the Fischer Assay work on that core along with the trace elements and things like that that are involved in the mineralogy and definition of the ore bodies. As Pete was commenting earlier, there is a difference between the Utah area of oil shale and Colorado. The shale property in the Piceance Basin ore zone is a lot thicker and tends to be of a higher grade, and in our case we certainly think we have an economic project, I don't mean it otherwise, but it is of a thinner nature - even though we are going to mine some 55 feet, we don't have as thick a zone as they do in Colorado. So from this work we developed the geology and this is a very cursory schematic of the stratigraphy. What we've done here is try to show generally what the geology is of the area. Lake Uintah back in geologic times covered both the present Uintah Basin and the Piceance Basin, and the deposits that were laid down that subsequently formed into the oil shale zone are stratigraphically correlatable across. We can correlate the Mahogany marker

and really quite a bit of the detail of the geology in Utah along with what's over in Colorado. We have the Uintah sandstone, in the upper portion of our property, and then you get into the Green River Formation and of course the Parachute Creek member of the Green River in which the oil shale zone exists and the Mahogany marker. The Birdsnest aquifer in the Green River is the only aquifer. Again this is quite a bit different from Colorado. It is the only aquifer above the mining zone that we're aware of in our tract area. It is not nearly as prolific in water make and things as some of the other aquifers that you find in Colorado. We don't anticipate the water problems in shaft sinking that were encountered in Colorado. We're not unaware of this kind of thing but we suspect this will be a lesser problem. Our mining zone is from some 400 feet, 300 to 400 feet below this aquifer. We don't anticipate any effect on the aquifer from the mining. The mining zone is about 55 feet. We'll be mining about 20 feet above the Mahogany marker and some 35 feet below it. The average grade on the tract from the drilling of the 55-foot interval is some 27-28 gallons per ton.

In our plan, and we are incidentally coring on tract right now, the centers of the production shaft and the service shaft, and we are doing some shallow coring out around for mine support buildings and things like that. We have also taken two grassroots core tests to the bottom of the proposed shafts on the tract. Our present plans are to have these service and production shafts about 250 feet apart and the service building which would house all the maintenance for surface equipment and the change rooms and mine offices, warehouses, and things like that in one large building complex with a tunnel connection to the service shaft for men and materials, to the underground. And of course a connection to the production shaft which we have to have access to. Now the White River Project is totally an underground mining operation. We range from about 800 to 1400 feet below the surface. The ore dips to the northwest and in the range of some 250 feet per mile so it's not a steep dip but it does dip and gets deeper on the U-a tract than U-b.

As Jim said, we're going with a conventional room-and-pillar mining method. We're doing this for basically one simple reason: We are familiar with this kind of mining. Nobody has mined these properties underground and we're not sure of everything we're going to be up against, but we want to be as conservative as we can be reasonably, so we're going to start with the room-and-pillar mining operation, which will be fairly routine. We'll drill and blast the rock, we'll have a 2-bench system. The upper bench will be mined at some 15 feet of height and then we'll take the lower bench at some 40 feet. The reason for that is obvious in that we can mine bench rock cheaper than we can what we would call development rock in the upper bench so we don't want to take any more in the upper bench than we need to to get the access. We would have, with the present plan, both conveyor haulage and truck-type haulage of the rock back to the shaft and then hoist it to the surface. Now in our Phase 1 everything is hoisted through vertical shafts to the surface facilities. In Phases 2 and 3 we anticipate driving declines from the surface, one to the east for Phase 2 into the U-b tract, and then in Phase 3 we would drive a decline from the surface to the west, and the declines would be equipped with large conveyors and we would bring the additional rock out on a conveyor system. We would anticipate operating the

Phase 1 facility, at least the mining portion, throughout the total life of the project, so we plan to set up these hoisting shafts, Service shafts to last the total life and operate those in conjunction with the declines.

To get an overlay of the plant facility and the initial mine layout, the dotted lines here, and these are all in the DDP, indicate development entries and then some beginning panel layouts in the underground and on the surface we have generally this plant pillar with the surface facility so designated. North is up. We would keep a minimum of extraction in the plant pillar area. Now we have designed the mine throughout the total tract area to have zero subsidence on the surface. We are planning some 72 percent of extraction in the panels themselves and some 55 percent extraction in our development or our entry system. You combine those and you get roughly 65 percent extraction of the resource on the tract. Now that's for first mining and that's what we're proposing now. It's been my experience in the mining industry that once you have a viable operation if the ore is there that you will find ways to get more of it out, but at the moment the plans are to have zero subsidence. We will monitor for subsidence on the surface with grids of survey stakes and we will watch for it. But we certainly want to be sure that we don't get any subsidence in the immediate plant area for obvious reasons.

When we come to the surface facilities I didn't mention but underground we will be doing all of our crushing. We are going to be doing both primary and secondary crushing underground. It will be in the immediate area of the shaft and we will primarily crush to 12-inch and then secondary crush to 4-inch. The rock is hoisted and at the surface it comes from the production shaft to a major bin. This bin would feed silos which would feed screening plants and they in turn feed the retort system. The different colors depict the different stages of the project. The orange is Phase 3 and the green is Phase 2 and the darker color is Phase 1. We can also go to surface stockpiles for area storage and of course reclaim into the system so that we want to keep to some degree an isolation between the mine operation and the surface operation so that if one is down the other one need not follow. Hopefully they will both run all the time but we know that doesn't really happen.

So if the materials handling works that way, the fines - since we're working with coarse type retorts, the Superior and Union, we do not - this is in Phase 1 - we will not be utilizing the fines in the retorts and we will be stockpiling them. The fines, along with the spent shale, will go out to stockpile areas and the spent shale will be put in Southam Canyon and the fines will be put into a small canyon and retained until Phase 3, at which time a fines-type retort will have the capacity to utilize those fines. The spent shale, as I said, goes to Southam Canyon. This is a depiction of the entire area of Southam Canyon that would be filled with spent shale on completion of the total project. We would start out coming to the south, we start our initial Phase 1 disposal area in here, with a truck system - we would convey it to a point and then use trucks and distribute into a disposal area with a truck. As we get into Phase 2 and we're looking at something like 90,000 tons a day, while in Phase 3 we double that. A truck system becomes sort of a Chinese fire drill, so we're looking at more of a conveyor stacker type system where we can handle these large volumes on a daily basis.

That's a quick rundown. I think we'll go on and have questions later on unless there is something specific right now. If not, we'll have Chuck Doney and the surface facilities.

MR. DONEY: I have about 8 or 9 slides here which will explain first some broad concepts of how we plan the surface facilities and then some details of what we propose for the surface facilities.

First is a plot plan of the surface of both U-a and U-b, and earlier you saw a slide which showed the processed shale disposal area. This red line outlines the ultimate size of that. Now the oil shale resource is pretty uniformly distributed over the leases. The location of the processed shale pile is pretty well fixed by the terrain. So the problem we had in locating surface facilities is reconciling an efficient movement of materials from the mine to the surface plant and then to the shale pile with the very difficult terrain that we have out there, and as you might suspect, we ended up with the surface plant pretty well at the centroid of the leases. This is a very important consideration when you're talking about handling a billion tons of material, which we consider to be about the recoverable oil shale on those leases. In fact, it's so important that it wouldn't make much difference what your surface looks like, it has to be there.

Now this is a photograph looking north toward the river near the location of our first mine shaft. We propose to take advantage of this particular terrain by essentially placing our surface conveyor system down this ridge with the retort to be constructed in the valley off to the right.

This is another view of the same place but this was taken from ground level on the ridge with the retort location again off to the right in the distance. Now in our Phase I program we are proposing two retorts on the surface, one of them the Union B retort, which a lot of you are familiar with; the other a retort developed by the Superior Oil Company. So very quickly we will look at some flow diagrams of these things so that you may understand better what we're proposing. This is Union Oil's retort. It has the unique feature of the rock pump, which I'm sure many of you are familiar with. This forces the rock up through the retorting zone and the product, the oil and gas, moves out the bottom. It is what we call a counter current retort. There are some external facilities pretty well as described there. As I said, this slide has been around a long time and I'm sure most of you are familiar with it. Any questions on it?

Now this one is the Superior Oil Company's direct-heated retort and perhaps you are less familiar with it. Initially first we're looking down, this is a plan-view, this is not a cross section, and what this thing is, it's a big mechanical grate that moves in a circle and the shale comes in as noted at the top of the sketch. It goes through a retorting zone and then through a heat recovery zone where a portion of the residual carbon on the rock is combusted to furnish heat. Then it goes through a cooling zone and then it is dumped on the pink part of the circle to the processed shale disposal area. Again there are all kinds of auxiliaries that service this retort.

The appealing part of this particular machine is that most of the mechanical parts of the machine have been proven in other services. These things are widely

used in the iron and steel business, and some very large ones have been built. So that's the part that appealed to us. We think it is a mechanically proven system.

Now finally we reached the decision that we are not going to retort these fines - these shale particles smaller than a quarter inch in Phase 1, which is a two-retort demonstration. But sooner or later we think that we are going to have to recover these things. Our present concept as described in the plan is a series of TOSCO retorts, and once again I think that you are pretty well familiar with the TOSCO method of retorting. It's a system of heat transfer by ceramic balls in a rotating drum and it can handle very small, very fine particles of shale. Now there is a study going on to find out if there is another approach to handling these fines, and that would be what we call agglomeration, or the cementing them together into larger particles which could then pass into the conventional retort. We don't have any results from that yet, but if we were successful in finding a way to do that we could eliminate this particular retort requirement from our project.

Just very quickly we'll go through this. This is a flow sheet of our Phase 1 indicating that for 27,300 tons in we can secure 16,900 barrels of marketable synthetic crude oil which would be totally acceptable in practically any refinery in the world.. There are several processing steps once again. This is our mix of the Union retort, the Superior retort, and downstream from that it becomes a question of cleaning up and hydrogenating or adding hydrogen to the crude oil product to make it a marketable product.

This is only a demonstration of what happens in Phases 2 and 3. In Phase 2 we are calling for a mining rate of 93,000 tons a day. In Phase 3 176,000, again yielding those quantities of upgraded shale oil, And those are enormous tonnages of rock. Any questions on these?

Well the last slide I have is of obvious importance. That's our water supply, we hope. This came out of the preliminary EIS for the White River Dam and it is obviously plagiarized but it's a pretty picture and it shows an artist's conception of the dam and the reservoir which would result from the dam on the White River, and it is our preferred source of water.

So to close this out I'd like to emphasize the importance we attach to Phase 1. This is our modular program where we hope to demonstrate the operation of these various parts which have never been tried before and the results of Phase 1 will have a lot of influence on what eventually happens in Phase 2 and Phase 3. That's all I have, Jim.

MR. ASH: We will continue with the White River presentation. There are a couple of announcements I would like to make before we do that. I think I would like to recognize a couple of gentlemen who came in a little late this morning. Grant Davis, a member of the Panel since its inception for the Depattment of Agriculture. As I mentioned earlier, he has now retired, he's kind of phasing out, I guess I don't know whether he will be with us beyond this meeting or not, but

Grant, congratulations on your retirement and thanks for all your service to this Oil Shale Panel over a period of 7 years, actually more than 7 years.

Another former Panel member who came in, is Paul Sant, who retired from the Bureau of Reclamation, joined us this morning. Paul was with the Panel for 3 years I think before he retired. It's nice to have you all. Then the other announcement is relative to our extra-curricular activities available this afternoon after the public hearing. One of our members, Deborah Linke, here has an announcement, an invitation to extend to members and friends of the Oil Shale Panel. Deborah.

MRS. LINKE: Thank you, Hank. Since I seem to be sole the Salt Lake representative who at the time when Hank was arranging the meeting we decided it would be nice to have a little special get-together after the Panel meeting this afternoon, and I have arranged for the back room at the New Yorker Club, to be made available for us to get together and have a soda or whatever. The "whatever" is a cash bar, and they will be expecting us between 4 and 5:30, which allows members of the Panel time for dinner afterwards. The address is 66 Post Office Place, it's about, if you go up Main Street in front of the hotel here, go up to main Post Office, go just past the main Post Office and take a left it's on that little street downstairs.

MR. ASH: Thank you, Deborah. I'll turn this back over to White River Shale.

MR. GODLOVE: Our plans for environmental protection for the White River Project are expressed within the Detailed Development Plan. I would like to start off by giving everybody a status of the permitting for the project. White River has identified about five critical preconstruction-related approvals for the project. The first of these, of course, is the one that we're considering today, the Detailed Development Plan. It has been submitted and is in the approval process. We would anticipate its approval, or at least its approvability, within the next couple of months. There are at this point two separate air quality permit applications which must be received before initial or considerable on-site construction can begin. These are, of course, the PSD (Prevention of Significant Deterioration) permit, which at this point is issued by the EPA and the Utah Bureau of Air Quality's air construction permit as well. The air permit application has been submitted to both agencies. I'm sure as every one knows, the State of Utah is operating under a cooperative agreement with EPA under which the Bureau of Air Quality is handling the review of the permit application. It is altogether possible that Utah will have primacy of the PSD program by the time the application is ready for approval and we will actually get only one air permit issued, or at least for the initial application, issued to a project. Pete mentioned earlier this morning about the endangered species clearance which the project has received from the U.S. Fish and Wildlife Service. This was a very considerable undertaking on the part of the Oil Shale Office, we do appreciate their efforts and at this point we're very confident that the project will not adversely affect any endangered species that is in the area.

The last two critical preconstruction permits are the mining permit which will be issued by the Utah Division of Oil, Gas, and Mining. This also involves the

reclamation approval as well, and there will be retention dam facilities necessary for construction, and this will also have to be approved by the State of Utah.

White River has identified many other generic permits required for the project. About an equal number of Federal and State permits. I hasten to mention that this is a only a generic list and generic number of permits, like the Colorado tracts, there will be numerous individual permits required for the project. I have listed here just a few of the significant Federal and State permit applications. We are now in the process of preparing all of these.

Of course one of the very important considerations that White River has built into its plan is protection of the air resources in the area, as depicted by this slide. White River has very thoroughly investigated what it expects to be the points of emissions from the project and has determined what, in its opinion, is an appropriate level of pollution control to be installed upon each of these points of emission. To To give you some for instances, all of these, of course, are contained within the Detailed Development Plan. As far as sulphur dioxide emission controls, we will be treating all of the off-gases produced during the project prior to reuse within the project, primarily in the form of boiler fuel and furnace fuel. Upgraded shale oil will be used wherever necessary as an enrichment fuel. I'm sure, as you know, upgraded shale has very, very low quantities of sulphur within it, and of course the Detailed Development Plan does premise flue gas desulphurization facilities on the commercial boiler house facility. Thsese facilities were necessary to comply with the PSD increments which currently exist. As far as our particulate controls, we will be installing numerous bypass filtration systems and venturi water scrubbing systems, dust suppression on roadways, processed shale, raw shale storage areas will also be practiced to minimize the emissions of particulate matter into the air. Of course the other criteria noncriteria pollutants will also be controlled by the project well within established Federal and State air quality standards.

White River has developed a conceptual water management plan at this point. It is being implemented as a part of our detailed design of the project. The water management plan is premised upon minimization of water use by maximizing the reuse of water, and this is depicted in this slide. This slide is also contained within the Detailed Development Plan. As the slide indicates, water will be withdrawn from the White River through either alluvial wells during Phase 1 and the White River Dam during the commercial phases. It will be used for fire protection facilities, processed shale cooling, and certain uses within the processed shale disposal area itself. The water will be treated and used for potable purposes within the plant and the onsite camp facilities and also within the process area. Wastewater will be treated and reused to the greatest extent possible within the process and also for processed shale disposal purposes. All the process area storm water, contaminated storm water runoff will be collected and treated and then reused, as will storm water runoff from the Southam Canyon processed shale disposal area.

Like any oil shale facility, White River will be generating a certain amount of solid waste material. We've put together this inventory of solid wastes to be produced during Phase 3, our ultimate commercial facility. White River will be generating both nonhazardous and a certain amount of hazardous waste materials. Of course by far the largest amount of solid wastes generated will be the processed shale, amounting to about 149,000 tons per day during Phase 3. A certain amount of other nonhazardous wastes will also be generated during Phase 3 and amounting to about 300 tons per day. A certain amount of hazardous wastes will also be produced by the project including waste oil, spent catalysts which are unrecoverable, API separator and tank bottoms, and certain other sludges which contain hazardous classified materials. The hazardous waste materials produced by the project will be handled in an on-site disposal facility that will receive approval under the existing regulations. At this point this is the Resource Conservation and Recovery regulations. We will be producing about 3 acre-feet of materials per year of hazardous wastes. As I mentioned, all of these will be disposed of in approved facilities onsite.

Land reclamation is also a very important concern to White River. Our land reclamation plan has considered each of these concerns in arriving at our final plan for the reclamation of the surface of Tracts U-a and U-b. Of course there are two separate types of areas which must be reclaimed: The disturbed area, the plant area, access roads and the like, and also the processed shale disposal site. At the ultimate development stage, White River will have disturbed about 3100 acres on-tract. Of that 3100, about 2400 will be the processed shale disposal area. Of course this leads into the first major concern that we have in establishing a reclamation program, is the large amount of land which must be reclaimed. As I am sure you all know, there are very sensitive water concerns in this region of the intermountain West and our plan does minimize the use of water during the reclamation and revegetation process. Of course the availability of suitable topsoil is a very important consideration. There is very little of what we would consider suitable plant growth medium on tract. What suitable materials do exist on tract will be recovered and stockpiled for reuse in the reclamation program. Of course Topsoil vitality is another important consideration. We are investigating this right now, how big a stockpile can you have of recovered topsoil how big a stockpile of recovered topsoil can you develop and still maintain the viability of that topsoil as a plant growth medium? Plant species selection is also another important consideration. Our reclamation technique will involve native species to the area. Of course the properties of each shale processing technology generates a processed shale with slightly differing characteristics. We have investigated all the characteristics of the processed shale that we intend to be revegetating and our revegation techniques consider those properties. Of course due to the area, the cold desert environment, lack of water, it does take quite a bit of time to stabilieze the plant community and allow it to become established. So we are dealing with time periods of 3 to 5 years to stabilize the plant community. Of course foreign interferences, these include both domestic and wildlife, man, which might choose to come into an area that is being revegetated and disturb the process of revegetation. We will be seeking to control these outside interferences. And finally the economics of rehabilitation. At this point we estimate somewhere in excess of $10,000 per acre to completely reclaim these lands.

All this has led to the White River Shale's water harvesting technique. This has been done in cooperation between the White River Shale Project, the Utah State University's Institute of Land Rehabilitation and currently by Native Plants in Salt Lake City. Dr. Cy McKell has been our principal consultant in developing this technique. This is one that we have a great deal of confidence in. It's one that we have invested 5 years of research in. It is one that is knowledgeable of the existing conditions and tries to take advantage of those existing conditions. This is a slide showing how the various slopes of the processed shale area would be revegetated, although the same general technique would also be applicable on the flat areas as well. What we will do is compact the processed shale, the top surface of the processed shale will be compacted a little less tightly, we will then form water harvesting basins on the slope. These slopes will be stabilized, recovered topsoil will be placed in trenches and plants planted within those trenches, and then through means of natural succession the plants will then migrate out on to the slopes and the flat surfaces of the processed shale.

And finally, another very important aspect of White River's environmental plans is to develop a program which will monitor the impacts of development. These are the basic concepts that White River will be using in establishing its final monitoring plan. I might mention at this point that and it is mentioned in the Development Plan that White River is in the process of developing its detailed monitoring approach to the project, and the final document will be in the Oil Shale Officer's hands by the first part of 1982. As far as the basic concepts are concerned, of course you have to establish an environmental norm. White River has been monitoring the environment on tract now for 7 years and we feel that we have a pretty good understanding of the environmental trends that occur on tract. We have tried to identify the areas where we expect impacts to occur and the parameters which we would expect to see changes within. This then leads to establishing suitable monitoring technique. White River will be using a combination of these three monitoring techniques: Control versus treatment; interactive ecosystems. Most of what we are trying to do here is to determine the lowest possible level of monitoring that would effectively identify what's happening at progressively higher levels in the environment. And of course Statistical Procedures, hypothesis testing, the more conventional means of setting up and operating a monitoring program. Of course White River has generated a substantial amount of data in the past. We are now in the process of implementing a data management system that can relate all of the data that we're collecting and also can be fed directly to the Oil Shale Office for their use. The whole purpose of the program is to quantify the actual impacts of oil shale development. This then can be fed back into more appropriate mitigation procedures. And finally this is a dynamic program. The program we develop today may or may not be the one that we're following 3 years from now. This will be an evolutionary process.

That completes the discussion on the environmental aspects of the project. At this point I'd like to turn it over to Rees Madsen to talk about socio-economics.

MR. MADSEN: Thank you very much, Jim. Good morning ladies and gentlemen of the Panel and members of the audience. The purpose of my portion of the presentation is to describe two things. First would be a discussion of the approach that the White River Shale Corporation has taken toward addressing socio-economic impacts and the associated mitigation plan, and the second part of it would be to highlight some of the findings that we have come up with to date in our program. Tomorrow on the agenda we'll have another 30 minutes which will be devoted strictly to socio-economic concerns and at that time we'll have a chance to get into quite a bit more detail.

As all of you are aware, the leases which we're operating under do not specifically require that White River prepare socio-economic assessments or plans or mitigation measures. But early in the program we recognized that in order to be able to attract and retain the work force that we're going to need, that we're going to have to be, as a corporation, involved in addressing the socio-economic type of issues. In that regard, in 1976 when the Detailed Development Plan was first published and issued to the Panel we did prepare a supplemental socio-economic report which was in two volumes and which addressed the baseline that existed at that time in the 1975 and '76 timeframe, and also described some of the projections of impacts that might result from our operation in the area. Following along that same direction, we have prepared again in conjunction with the updated Detailed Development Plan a supplemental report titled Community and Infrastructure Support Study, which addresses in many aspects those parts of the socio-economic issue that we feel are most important to be addressed. The study which you have before you, that is the supplemental study, was intended to primarily present to you our best estimates of the manpower buildup and the timing of that manpower as associated with our project. It was not intended to take away the prerogatives and responsibilities of local government and also state government in the identification of the needs that would result from that impact nor was it intended to put forward a commitment or commit White River or any of the state agencies or the local governments to any set pattern of mitigation measures. So with that in mind I'd like to discuss briefly how we have interpreted our approach to addressing the socio-ecoo economic issues, and we see them falling into really three broad areas, the first one being developing impact estimates which would tell us who's coming and when they're coming and how many are going to be showing up, and second a point in time where we jointly with government and with responsible public groups seek to try to identify what kind of needs will result as a direct result of our operations in the area. And then finally the estabishment of mitigation plans or measures that we would suggest and would work with the local communities in developing that could be used to offset the negative impacts associated with growth in the areas that we're talking about. We see the report that you have before you, really falling primarily into this area with at least one group's opinions of what some of the needs that might result from these impacts would be, and we see only a few items in that study that really talk about mitigation measures specifically, because we see these two areas really being something that would be very presumptuous on the part of White River to come forward with at this time-detailed information and descriptions in these two particular areas.

The approach then that we're taking involves first identifying the impacts in the area and we have looked at, the study, the area of interest as far as our work is concerned, of course, being out from our tracts U-a and U-b located in Uintah County. Currently U-a and U-b are connected to Vernal by about 50 miles of existing roads, and as has been mentioned previously there is road construction currently underway that will make the distance closer to 37 miles to the tracts, and puts us within that kind of distance of the largest community in Utah.

On a broader scale, again focusing on the two Federal prototype lease tracts, we have a picture which also describes the Colorado area which is within about 30 miles or so of our properties, and a little bit broader picture of the area of interest in Utah. A few things here that I'd like to point out, is again the road connecting Vernal to the tract site, I'd like to point out Rangely, Colorado, which is less than 30 road miles currently to our property, and again the Vernal city itself and a bigger area around Vernal City which we have referred to as the Ashley Valley area. The Ashley Valley area encompasses not only the incorporated city of Vernal but also several unincorporated communities as well as some county property per se which is not part of community development at the present time. This map also shows, and it is available to you, the location of other projects in the area including Geokinetics, TOSCO, the Moon Lake Powerplant, Paraho Development Corporation, the proposed White River Dam on the White River.

This slide shows on the ordinate the workforce, going from the 1,000 up 6,000 and the abscissa showing project years which you can relate back to the schedule which Jim Godlove showed earlier in the presentation. The graph line of course represents the total for both construction and operations our workforce as we currently project it. The construction as you would expect starts out near the beginning of the project and we have peaks and valleys that are associated with the steps from the various phases as outlined in our Detailed Development Plan and eventually peaking out at about project year 14 as the operations part of the program takes over from the construction operation. We generally speak of a peak of about 5,000 to 5100 total employees, dropping down to about 3350 employees after the construction through Phase 3 has been completed.

The next slide takes that information and puts it on this histogram showing the years on the ordinate and population in thousands on the abscissa. The green again is just the total direct employment over the course of time starting with '81 and in this case going through 1994, and the yellow there is an effort to give a feeling on or a perspective on the total population that would result both from the direct employment and also from the indirect employment that would be induced as a result of us being in the area. And also as I'm sure you have noted in reviewing our report, we're talking about a peak of close to 20,000 individuals on that basis, around 16,000 or so in the '94 timeframe which is one of the two dates we have used in our community and infrastructure support study.

This slide was used previously to point out some of the surface facilities in regard to the project. I'd like to use it to point out the location or at least the currently proposed locations of the two parts of our construction camp, the recreational vehicles location in the northern part of Tract U-b, and the

"bachelor" camp located still on Tract U-b but a little bit further to the south. In the area of mitigation this is a place where we have some control over the housing and the solution to some of the problems at least insofar as construction is concerned, and we plan to take an active role in following up on how that construction camp would be designed, developed, and fit in with the surrounding communities.

By way of conclusion as far as the socio-economics study, our work is concerned, I'd like to broaden the three major areas of identifying impacts, developing the needs list, and coming up with the mitigation plans into a little broader perspective. We see ourselves as being at the point where we have to prepare assessments as far as the Corporation is concerned. The answer to the question of who is going to be there, when are they going to come, and how many do we expect. We are at this point as far as discussions are concerned. We see as the next step the revisions of these assessments from two standpoints, the first being as we get more engineering completed we'll have a better understanding of the manpower projections and the accuracy of them, and from the other standpoint the local communities and the state agencies will have a chance to review the material we've presented and to suggest changes and to make revisions on their own as far as their planning documents are concerned to reflect what they consider to be accurate projections of needs and also the impacts on their communities. Again at this point we see a very great need for continued dialogue and discussion with the people whose business it really is to deliver the government services that our employees are going to need and which the community in general will need. From that standpoint we would move on to again to develop the needs assessment which is again a mutual effort but leaning very heavily on the agencies that do this as a business, the communities, the local governments who know how their funding positions stand, and know what they would like to accomplish as far as integrating increases in population, and then the step as far as developing the mitigation plans and then ultimately implementing them. From the standpoint of Utah, we have met with the state, local communities, including Uintah County Commissioners and Vernal City, we have put ourselves into what's called the Utah approach within Utah, which is an effort to bring together those people and organizations that need to discuss these things and to work together through the maze of asking questions and answering questions and moving on to a reasonable solution. From the standpoint of Colorado, we have visited with the Rangely city people, including Mayor Rector and Don Peach, and Rich Lovingood and also one of the members of the City Council, and in addition we have appeared before the Rio Blanco County Commissioners to describe very briefly our project and to open up the avenues of dialogue, and we see this as being the starting point of and the place where we can move forward to come up with the kinds of reasonable solutions that are going to be required to make sure that we can attract and we can retain the kind of work force that we want to have and that also the local communities can realize their aspirations as far as the quality of life in their communities is concerned.

That concludes the socio-economic discussion. At this time I'd like to return the microphone to Mr. Bob Pratt for concluding remarks.

MR. PRATT: You can turn the lights back on, we are all through with our slides. I should mention one thing, going back which came up at our coffee break. A number of years ago I was making a presentation here in Salt Lake City to about 2500 of my employees and I took the opportunity to introduce all of my staff as I did here today and their wives, and I went on with my presentation, and I was making a comment about going shopping with my wife, and all of a sudden you could see the light dawn and I realized that I had introduced all of my people and their wives except my wife, and that caused a lot of fun when I got home that night, but I think it is time to stop and introduce her, and I should tell you who I am. I am the man where the buck stops. I'm Bob Pratt. I am President of the White River Shale Oil Corporation. I didn't do that when I stood up before so that for those who don't know who I am, that's who I am. If there are any questions, we are going to be making, as Rees said, a presentation this afternoon, we'll also be meeting with you tomorrow, so if there are any questions we have lots of people here to help us. If not, Hank, we appreciate having the time here this morning and we'll look forward to meeting with you this afternoon.

MR. ASH: Thank you, Bob. I would like to encourage any of the Panel members or workgroup chairmen, this is a good opportunity to ask questions before you have your workgroups get together perhaps later today before our meeting tomorrow. Do we have any burning questions from Panel meme members this morning?

MR. MOSLEY: I have one. In reference to your health plan, I see that you indicate that you will be utilizing health professionals in working up the health plan and then I am further observing that you would have technicians and also that you wouldn't have a physician on the site, so I was wondering what you meant by health "professionals and implementing your health plans that relate to the safety of your workers?

MR. PRATT: In our health plan have really a numb er of areas that we intend to look at. Jim Godlove, who is our Director of Environmental Affairs and he will also be looking in that area from an industrial hygiene standpoint, will also have a safety director who will have a staff from an operations standpoint as well as the Parsons people that will be building it. They'll have their safety people for the construction workers, and then we will have a Director of Medical Affairs, and initially as we start out this could be contracted but as we bring the workforce up then we'll develop up our own program where we could have a number of physicians, doctors that are experienced in this area to help us do this, as well as going to the outside with consultants.

MR. ASH: Bruce Waddell.

MR. WADDELL: Could you elaborate a little bit on how the White River Shale Project is going to put the bulk of the White River Dam in the river area. In other words, will it overlap the project area somewhat. The shale beds as I understand will be underlying the proposed White River Dam.

MR. PRATT: That's correct. They will be underneath that. Lowell, you may want to speak to that from a geological standpoint. We have met with the State water people and discussed this problem . Lowell.

MR. PAGE: Yes, we are aware of the situation and have been since Day 1, and we have done angle drilling on tract to determine joint fractures that might extend beyond the surface, which you see are very prevalent. The drilling that we have done along with the drilling that Bingham Engineering and the state programs with regard to the geology of the damsite indicates that the jointing that you see on the surface really does not extend down into the Green River Formation. It's most prevalent in the Uintah and we do not anticipate that the reservoir effect would be noticeable in the underground mining operation whatsoever. There are a couple of things to keep in mind in this regard. One is that we will not be mining in the region of the overlap of the reservoir for many, many years. That is part of the Phase 3 mine plan, and also that the interval of rock between the river and the mine is many hundreds of feet and we really don't believe that there is going to be a problem. But we certainly are aware of it and will be watching for it, and have done some work to try and determine if it was a recognizable hazard to us now. We just don't believe it is.

MR. ASH: Any other questions or comments for White River?

MR. JOHN: I have a question, Hank. Mr. Pratt and Mr. Madsen mentioned that you're starting the process of estimating what your workforce is going to be and the population you're likely to expect coming from that. Have you entertained the possibility of having some kind of monitoring program once you get underway so that you know where your employees are living, how big their families are, and that kind of information is often very useful in deriving a real detailed understanding of the impacts on finances of local communities.

MR. PRATT: Yes, we have considered a monitoring program and likewise in the discussions that Rees indicated we'd be having with the communities, we had hoped in working with them and in their planning that likewise they would have their monitoring programs as well.

MR. JOHN: I have another question and that is you did mention that you met with the Rio Blanco and Rangely folks. Have you considered at all the impacts you are likely to have on the little town of Dinosaur? I believe the situation is that there's a fairly large trailer camp that will be going in there in the near future. I know that it will be impacted by the Moon Lake Project and I wonder if you've had any conversations with or considered those possible impacts?

MR. PRATT: I haven't. Let me ask the Chairman of the Socio-Economic Committee. Bob?

MR. DUDIAK: Dewitt, we looked at Dinosaur as a possibility. Moon Lake, as you mentioned, is using it, but they will be using it as a trailer park for their mine, which is located very close to that. Dinosaur in the gravity model that we ran for determining the location or an estimate of the location where the people would live we did look at Dinosaur but it was such a small percentage that would end up there that we really have not looked into it much deeper than that.

MR. JOHN: I've got another question, Hank. It doesn't relate to socio-economics. I don't know why everybody else is quiet, but I'll ask it. I think Pete said earlier or someone said that the question of threatened and endangered species in the river, consultation had been completed or something like that. I'm curious to know exactly what the status is, and I guess there are two situations. One of course is the dam and the other situation is where you are taking water out of alluvial wells before the dam is constructed.

MR. RUTLEDGE: Yes. Maybe I'd better elaborate on that. We started consultation with Fish and Wildlife and the other people early in the game. As was said here, the preferred source of water, long-term, is the White River Dam, but there are other viable alternatives identified in the development plan. When the whole process got over with, what came out in terms of the biological clearance, and the opinion sets out some criteria, which is in that opinion and will be brought forward into the approval of the development plan, if it's finally approved. The first is that the construction water for the first, I'm going to say, 3 years of the project, is a very small amount. That's what will come out of the alluvium in the White River. It was felt that that didn't endanger anything. There is a viable alternative for Phase 1 if it's necessary and if the White River Dam is not built during that, to utilize a pipeline from the Green River. It would be Moon Lake surplus capacity. From there if it will be necessary to go into Phase 2 and Phase 3. It will require another pipeline that way, which is not the best of alternatives but it still exists. So what's been brought forward in the opinion and what will go into an approval, if it's done, is construction water from the alluvial well, the bringing up of the alternatives on Phase 1 and later, and if the White River Dam is eventually built that would be the preferred source, but it kind of divorces the shale plan, since there are viable alternatives from the White River Dam issue.

MR. JOHN: I'm still a little bit curious. At one point there was an opinion floating around in the Moon Lake Project that withdrawal of water even from the Green might pose some problems. Is it possible that the opinion that's coming out from the Fish and Wildlife Service in January, if that opinion is negative, that the Green's water alternative wouldn't work either? Are these folks getting themselves into a difficult situation potentially? And I guess my second question is how much water are you taking out of the alluvium?

MR. RUTLEDGE: I could come up with figures but I haven't got them on the tip of my tongue on those.

MR. GODLOVE: Perhaps I can clear that up a little bit. My understanding of the opinion is that for the terrestrial impacts they have concurred in with the biological assessment for Phases 1 through 3, but they have only concurred with Phase 1 for the aquatic resources and they plan to examine Phases 2 and 3 as they come on line.

MR. RUTLEDGE: It's pretty sure for Phase 1 through the alluvial well. After that there is a cut point. As for answering your question as to whether there could be a "Catch-22" down the road, all we have is what's put out in the Detailed Development Plan. It appears there's an alternative from that.

MR. ASH: Thank you. Are there other questions or comments for White River? If not, we thank you very much.

MR. PRATT: Thank you, Hank. I might just say one thing as a Salt Laker. The directions that Deborah gave you up the street and down the alley and down in the basement, there is also a door you have to look in. It's a great Speakeasy.

MR. ASH: Our thanks to the White River folks and I'm sure they will be here tomorrow and perhaps available then to answer other questions if we get into a need for that as we discuss workgroup reports. We had planned to have the U.S. Geological Survey office give this additional presentation updating on oil shale in general. We don't really have that time this morning and still make a reasonable lunch break and be back here for our public hearing at 1:00, so we will defer that and try to work it in tomorrow more or less as we had it scheduled on the agenda.

Relative to the Panel developing its advice to Pete on all these different aspects of the plan, we've tried to work through our workgroup system, and encourage workgroups to get together for meetings this afternoon after the hearing in advance of our reconvening tomorrow. We distributed this morning a list of that workgroup structure and the members so you all should know who are the members of your workgroup or what workgroup you're on, and I would ask that you all get with your chairmen and see what kind of input you can give. Wally Hansen has the lead for the Panel. Wally, where are you? He's chairman of the White River DDP Workgroup so we would like you to communicate with him as to what you think ought to be in some general advice. We do want the workgroup reports tomorrow. In addition to that, I wanted to give the opportunity for any workgroup to identify when you may be getting together. Do you need to make any announcements? Do you need to advise any workgroup members? Deborah Linke.

MRS. LINKE: If possible, I'd like the water quality work group to eet together immediately after the hearing for a short meeting.

MR. ASH: Okay. Everybody knows who's on that.

MR. MOSLEY: Hank, I thought the socio-economic group was going to get together at lunch for a short time even though, we'll probably have a subsequent meeting.

MR. ASH: Okay. I know the group needs to get together, I'll be happy to meet with you if that will help. Are the members of that group aware of that? Can they get together for lunch? Is that the desire? I'll try to join you if that's okay. I would point out that any member of the Panel is free to comment on any aspect. You don't have to be a member of the Air Quality Workgroup to comment on air quality aspects of this plan. We solicit any comments. We have gone to the workgroup structure in the past just to try to make it a little bit more of a manageable job for you individually because you've got a lot of other things to do besides worry about the Panel and a given DDP but we welcome any comments on any aspects from any of the members. Do we have any other comments from the Panel or announcements on workgroups? Okay, if not, I would reiterate the fact

that the public hearing on this DDP will convene in this room at 1 p.m. this afternoon. We expect the Governor of Utah to be the leadoff witness at that hearing. Panel members are asked to try to be back for the hearing so they can hear what is said and take that into consideration in developing or recommending Panel advice or their own suggestions or comments on this DDP. The second session of that hearing will be in this same room at 7 p.m. this evening and there will be an opportunity for any people that come that want to be heard to speak besides those that have scheduled appearances.

Okay, we will now recess for lunch and the Panel meeting will reconvene tomorrow morning at 8:30 a.m. and I expect to see you all at the hearing this afternoon and this evening. Thank you.

Meeting recesses for lunch at 11:30 a.m.

THIRTY-FOURTH MEETING OF OIL SHALE ENVIRONMENTAL ADVISORY PANEL
RAMADA INN, SALT LAKE CITY, UTAH, OCTOBER 28-29, 1981
October 29, 1981

Meeting reconvened at 8:30 a.m.

MR. ASH: I'd like to reconvene this thirty-fourth meeting of the Oil Shale Advisory Panel and exercising the Chairman's prerogative I'm going to keep everybody offbalance by shifting the agenda around and do things in a different sequence, and maybe even throw things in that aren't on the agenda. The reason for this is that we are getting copies made of some draft recommendations and reports and just trying to fit everything in here this morning. I would note that our Oil Shale public hearing last night apparently conflicted with a matter of greater national import, the final game of the World Series, and we had no witnesses that testified. We did have a fair crowd of White River people here, however, and representation from the panel.

The first thing I want to have this morning is a status report on one of the Colorado projects. Dr. George Fosdick from Cathedral Bluffs is going to give us a status report this morning. Pete.

MR. RUTLEDGE: Hank, we thought it would be advisable to hear from the horse's mouth on this since the next large piece of work for the Panel, unless something else intervenes, at least with our operation, would be the consideration of Occidental - Tract C-b's revised Detailed Development Plan which at least from our work on it, some draft sections, and compilations of draft sections, looks like it's going to be a very detailed, very technical, thorough presentation when we get it, so with that, George, you can explain where we are.

DR. FOSDICK: Thank you, Mr. Chairman. First off, we've submitted the second draft of our DDP to the Oil Shale Office on October 1st, and we're now examining alternatives in the above-ground retort to the Lurgi process, in our Lurgi demonstration, that Lurgi did for us this summer, their costs went up a little bit and their performance went down, so that we're looking at alternatives to the Lurgi right now, which includes Paraho and the Union B, and we're modifying the mine plan a little bit. As Pete said yesterday, there's to be no development off the V&E shaft. So these two items take a little bit of time to do, and we look toward approximately a February 1st date to submit it to the OSO, and that would be perhaps a mid-March data to the OSEAP Panel.

The second item on our near term schedule is we hope to complete equipping of the production shaft on or about the 1st of March. We hope to complete the equipping of the service shaft headframe on or about the first of April and the production shaft headframe on or about the first of July. We hope to complete the mine electrical substation, that brings the 138-kv line from Meeker, on or about the first of July. We will begin station development from the production shaft which will include a cleanout ramp and shops and offices for access around the shaft. We will begin that about the first of July. We'll begin the first module of the permanent shaft building and the change house in 1982. I don't have the month

for that one, but that will occur then. We will continue our monitoring program, mostly as is. This Fall we've went to three air quality stations. We will continue the water monitoring program about as is. This year we initiated our reinjection program with a rather intensive monitoring associated with it. We do monitor some 15 or 20 surface stream stations, and about an equal number of springs, and some 60 wells on and off the tract. The biology program will be maintained at about the same level. As the gentleman from the Wildlife Division noted, we are doing a coooperative study with those folks on a series of reflectors which form a visible fence for the deer, and that should have some interesting results next spring.

We'll continue the present water management program for treatment and disposal of mine water, which consists of two ponds, A and B, where we can store the water. We can discharge it under a valid NPDES permit from these two ponds, or we can pump it up to a third pond, which we call Pond C and from that location we can either sprinkler irrigate it in the summer months, which we've done for the last two seasons, or we can reinject it into the ground waters of like quality. There's one reinjection well offers us about 450 gallons a minute, which at the present time are in balance with the water make from the two shafts. As Pete mentioned yesterday, we are allowing the V-E shaft to flood. It's some 450 to 500 feet from the surface at the present time. So we are in balance between water make and water disposal at the present time, and we plan to continue this present management system through 1982.

We have a tract coring program which will continue through 1982. We have completed three cores, two extra reinjection wells which we don't plan to implement in 1982 but they are drilled. We plan 6 to 10 more cores and one observation well north of the tract. We plan to continue development of the Yellow Jacket offsite water supply system. As you know, there's been a Senate Bill 439 which has initiated a $300,000 study with the Colorado Water Conservation Board.

And finally we plan to continue Phase 2 of the Kings Crown Trailer Court development in 1982, which should increase the number of spaces from nominally a hundred-ish to 250 spaces at a cost of $2.5 million.

So that is a summary of what C-b plans to do in the near term. Can I answer any questions for anybody?

MR. RUTLEDGE: For planning purposes, Hank, I think we want to remember that George just said that this plan should be available about the first of February. It will be a draft version, which means it will be available in sufficient copies for my office to get a cut at it and really the Panel members, and we generally do like to take a quick turn-around on that. What it does is give a chance for everybody to take a first crack at it and see what we can do to improve the document, and it means pretty much of a crunch. We usually like to schedule a Panel meeting a month after we get it and distribute it. That doesn't allow a lot of time to review it but at least it provides the time to get up to speed on what the next 6 months is going to be and put in what can be done then in each area of expertise to improve that plan. So it looks like, if that's the case, Hank, you might call a meeting perhaps in March.

MR. ASH: Yes, well I had anticipated scheduling one for earlier than that next year, frankly, on the earlier planning assumptions we had and anticipated we d meet probably in Grand Junction early next year, like January or February. I'd think that if we had the draft in hand February first, with two weeks we might meet then mid-February in Grand Junction and have a review and presentation, because we don't have to get to formal advice on the draft anyway, to get some input and comments. So yes, I think we can plan on something like that.

DR. FOSDICK: Any further questions from anyone?

MR. ASH: Okay. Thank you very much, George.

DR. FOSDICK: Thank you, Mr. Chairman.

MR. ASH: Duane Rehborg had a correction to make in this public hearing transcript from the Vernal hearing. Duane, do you want to cover that now?

MR. REHBORG: Sure. I have just a one-word correction but I think it's important to us. It's on page 17 of the night hearing in Vernal, and it's on line 23, it reads "river shale project funded monetary program," I have a copy of Commissioner Jones's statement and that is a "monitoring" program, not a "monetary" program. If they do want to give us money, that's all right, but that isn't what he said.

MR. ASH: Thank you, Duane. We had planned to do first this morning a continuation of the White River presentation, their further briefing on the socioeconomic supplement. However, right now we are waiting for an overhead projector. We have to wait for that before we can go on with it?

MR. MADSEN: If you like, we can go ahead with the 35-millimeter slides and cover the balance of the summary with the transparencies a little later.

MR. ASH: Let's do that, Rees.

MR. MADSEN: This slide shows the outline that we will follow in our presentation this morning, and I'll make a few introductory remarks and then rather than go on with the supplement summary for which we need to have the overhead transparency projector I will skip down to a discussion of some of the activities that we've been involved in to date, and a discussion of future plans and then some remarks concluding our presentation.

As I mentioned at the outset, the purpose of our presentation is to expand on the discussion that we started yesterday. We'd like to get into more detail on the community and infrastructure support study which you all have a copy of and which we will be receiving comments on today, and also we hope to have more opportunity to answer questions and to respond to any comments that you might have for us this morning as well.

I see the machine arrived. Bob, why don't you go ahead and set it up while I'm talking and then we can slide it in front of the other projector.

Just by way of introduction, I'd like to go back to this slide, and you will see it later as well, but to set the tone for our discussion and again we are talking about the Colorado-Utah area, eastern part of Utah. To get oriented, our tracts, 10,240 acres, are located here and show up as U-a and U-b. Communities of size located near our tracts include Rangely, of course, in Rio Blanco County, and Vernal, Utah, located in what we refer to as the Ashley Valley area, and then this slide also shows the proposed road which is currently under construction between Vernal and close to our properties, which would be extended on down into our properties. The discussion that Mr. Gilbert will go through will dwell on how we approached this study area and then some of the results we determined with the help of our consultants as far as the impacts and some stepping out into a discussion of the potential needs resulting from our impacts in the area.

This slide was shown yesterday as well, and I show it here just to maintain some continuity between our presentation yesterday and today. Again project years, along the abscissa and workforce along the ordinate, showing the total cycle of direct employees with the project and broken out into the component of construction, which of course cycles into and out of our various phased activities, and then the steady buildup of the operating personnel to a total of around 3350 individuals around Project Year 14.

Also yesterday we discussed how the White River Shale Oil Corporation is viewing the approach to addressing and eventually solving the socio-economic problems which our company and the local communities and the states involved are all concerned with, and again discussing the impact assessments, talking about the number of people who will be coming in, broken up into construction and operating people, and then projections of what might be induced as far as employment and also some idea of an estimate of population influx, then discussion of needs that will be generated in the area and again we look to the local communities and the states whose business it is to try to assess future requirements for government services to come up with these kinds of estimates in the final analysis, and then of course the mitigation plan. One mitigation plan that we will spend a little more time with today is the construction camp program and I will have some slides and some additional discussion on that particular item.

This slide is probably hard to see in the back, but it does show a sign that says "No services available for the next 100 miles." And for those of you who have not been out to our tracts, and I think there might be just a few Panel members who haven't, we are of course located in a rural area distant from centers of the population and the problems of attracting and retaining the types of people and the workforce that we require weighs heavily on our minds and requires the close kind of cooperation between our project and the state and local communities that we have been talking about for the last couple of days. At this point in time, since we do have the overhead projector I'd like to go ahead, in order and call on Mr. Robert Gilbert to make a presentation and a summary of the supplemental study which is before you for review. Bob Gilbert is our community development specialist and he's located in Vernal, Utah, and I'd like to have Bob go ahead and make his presentation at this time. Bob.

MR. GILBERT: I am privileged to be before the Panel this morning. I would like to briefly describe one interesting aspect of our socio-economic approach. It seems that when the owner companies first decided to begin looking at the socio-economic concerns from the project they formed the White River Shale Socio-Economic Committee. That committee is made up of one representative from each of the owner companies. Interestingly enough, two of the fellows on the committee have the first name of Bob, and I think that must have been one of the criteria used in selecting a staff person for the project because my name is Bob also, and then they may have carried the criterion one step farther when they selected a president for the corporation, as you know his name is Bob Pratt. So in our company when you call for someone named Bob you get three or four heads that turn quite quickly and see what you're interested in. We've been able to overcome that hurdle for the most part I think. This represents the document that I'm scheduled to present some information on today and it is the first step that we've taken in addressing our socio-economic responsibilities. With that in mind, I'd like to begin with the presentation.

Earlier this year White River called for some proposals from a number of consulting firms and after interviewing a number of them Gibbs and Hill were selected to produce this socio-economic document. Let me begin with the first transparency which talks about the purpose of the document. The first purpose, of course, was to identify the impacts. We had the engineers that were working on the project provide some manpower estimates to Gibbs and Hill and from these estimates and through a series of economic and other kinds of process models, the impacts were described from the proposed White River Shale Project. We also wanted to provide planning documents to the local communities. We think we've done a pretty good job of describing the existing conditions that are in Vernal and Rangely with regard to infrastructure and public facilities, and they can use this document to develop standards that will be required as the impact progresses. We also wanted to initiate some discussions between the state and local governments and ourselves and issue this document as being an important first step towards providing something that we could sit down and talk about. Next transparency please.

You recognize this as the general region where the project is located. Here we have Vernal and the Ashley Valley. We have the City of Rangely and we have the existing road network, and there has been constructed the new road from Vernal down to Bonanza. I might indicate some of the populations of these areas. The greater metropolitan area, as we refer to it, in Ashley Valley has around 16,000 people. Vernal, which is an incorporated community here, has around 6200. Rio Blanco County has around 6400 people, Rangely about 2200 people. I wanted to ioint out that the State of Utah and some of the agencies within the state have been involved in a cumulative impact analysis. They have looked at six projects that are proposed in Uintah County in Utah, the TOSCO Project, the Moon Lake Powerplant, the Paraho Project, the White River Dam Project, our project and also over here off the map is Geokinetics, and they have been involved in a 2-year study. This is just a copy of one of the interim reports that they have produced. I point this out because in the Gibbs and Hill study we've tried to blend and fold in some of the results and the numbers that are in this document into the Gibbs and Hill study so that it gives an idea of cumulative impacts from a number of energy development projects. Next slide.

This is an enlargement of the Ashley Valley region. I might mention that these transparencies all come right out of the document and you'll find them as you look through. This is the Ashley Valley region. Here's the outline of Vernal City. To give you an idea of the distance, one of these squares is equal to a square mile, so we have quite a bit of land area there that's available for development. These lines that are in this transparency show water and sewer lines development. Ashley Valley is in the process of constructing a new treatment plant that will have quite a bit of capacity. We'll get to the capacity numbers in a minute. Over here on the corner you'll see some bold lines that outline the White River Shale Project properties. We have no immediate plans for their development. We have found we are encouraged by the housing development that we are seeing going on in Ashley Valley right now. There are a number of housing projects that are under construction and many more are planned. We are anticipating that the private sector will be very responsive in providing housing for the energy projects. I might also mention that Uintah County in particular has developed an approach that they don't want to build or construct new communities in Uintah County. For instance, there was some talk last year, I think, with regard to building a new community down in the Bonanza or oil shale region, and the county has taken the position that they'd like to see the growth kind of funneled or channeled into the Ashley Valley region, and we're supportive of that objective.

I'd like to discuss and show some population impact numbers for a minute. You will notice throughout the report that Gibbs and Hill presents information in three project years, 1985, 1989, and 1994. These years were used because they made good reference points. 1985 represents the year that the Phase 1 operation will become operational. 1989 is in the peak period of construction and employment operations numbers. There we have a little over 5,000 employed. And 1994, of course, represents the full-scale commercial operation, at 106,000 barrels per day. You will see that the construction camp takes about 50 percent of the construction numbers. We anticipate that 50 percent of this workforce will live in the camp. They will be what we refer to as single status workers. You also notice thatin 1994 there is no construction population or construction camp population. The camp will be phased out when the project is finished with the construction phase. Here are some numbers that show the direct population, that's White River Shale Project direct population, and here is the White River Shale Project totals, that's indirect and direct populations. Right near the peak it's about 18,000 people.

I'd like to discuss the distribution model that Gibbs and Hill used in the study. As I mentioned earlier the construction camp we figure will attract about 50 percent of the construction force. Just a word about the model that Gibbs and Hill used. It was developed by Argon National Laboratories, and was published in a document that was printed in 1980. Of the remaining construction force and the operations forces, we expect Ashley Valley to attract between 80 percent and 76 percent, Rangely to attract about 20 to 24 percent. I'd like to give three considerations that ought to be remembered when we're evaluating and analyzing, particularly, these kinds of percentages. One is that the new road between Vernal and Bonanza was not used in calculating these percentages. If it had been, Ashley Valley would increase its drawing percentage by 4 percent, Rangely would decrease theirs by 4. In addition, the study that the State is

working on, which is the UPAD, they use an economic model called the UPD model, and this is their latest publication, it's quite interesting, if you get the chance or the opportunity to read it, but they project that 8 percent of the White River Shale Project people will commute from Rangely, anJ the other consideration is that due to the housing shortages in Rangely and Vernal, there's isn't much available housing, we feel that a company can really have quite a large influence in determining where their workers may locate. Next transparency please.

I want now to talk for a minute about how some of the standards were derived in the Gibbs and Hill study. Let me indicate that the charts I show from this one on will be those that were developed for Ashley Valley, for illustration purposes. Similar charts and data are available for the Rangely area in the study. Gibbs and Hill in their work compiled a number of sources and documents that have been used to indicate energy impacts on western communities. Each one of these numbers represent a source that they pulled information from. For instance, No. 1, I believe is a book put out by an American Engineering Society and it lists the standards of 179 gallons per day per person for a water distribution facility. Then there are similar sources and standards listed. Then Gibbs and Hill picked the average source, the average standard, and then they proposed the source which was used in identifying impacts from population growth. They also have shown here the wastewater collection process by which the standard was arrived at.

This takes those standards that were shown in the preceding transparency and applies them to the growth that is projected for the Ashley Valley. I've indicated the capacity of the water supply and then they show how the baseline, the WRSP direct population, the cumulative projects population, and then a total population impact stacks up against the capacity. You'll see that this chart indicates surpluses and deficits, all of the columns have a plus sign in front of the numbers, which indicates that there is a surplus. Let me explain how this works, very briefly. Basically you start out with the 15 million gallons per day in 1985, which is the projected capacity of the Ashley Valley culinary water supply and then you subtract about 4 million gallons per day, that's the baseline we used, and so you have a capacity left of about 11 million gallons per day. Then the White River direct population would use about 200,000 gallons per day, point 2, so you have 11 million gallons left, and then the cumulative project of the other ones besides the White River Project will use about 1 million gallons per day, and then that adds up to a total of about 5 and then you have 10 million gallons per day capacity left, or a surplus. Is that clear to everyone? Are there any questions about that? Okay, the conclusion of this chart and the conclusions stated in the study is that there is enough capacity in the Ashley Valley water supply system to handle the cumulative project's impact.

MR. JOHN: You might mention you are using the Ashley Valley slide here.

MR. GILBERT: Okay. Using this Ashley Valley slide for purposes of illustration and continuity. Similar data exists for the Rangely area in the study.

This is the sewer system, which shows the same kind of information. We have the capacity listed across the top, and then the different needs are extracted, we have surpluses left of these numbers, and in 1994 this shows a surplus of about 5.3 million gallons per day.

This is the final transparency that I have for you to look at. One of the avenues that's available to a city or a county or a governmental or unit is bonded indebtedness and we've tabulated the amount of allowed indebtedness for different governmental units in Ashley Valley. We have indicated the present indebtedness, and then we have the available indebtedness left. Now this is one avenue that's available for community improvement.

Let me just sum up by saying that the White River socio-economic supplement is quite a thick book, it has a lot of numbers and charts and data. I think, of course, it's worth your time in reading and looking at and evaluating. We're in the process of receiving comments on the supplement from state and local governments and we've been encouraged because they have provided some good comments for us to consider. We see this document is really our first major step in socio-economic resoponsibilities. We plan to follow it up by keeping track of what communities are doing and keeping a good feel for what the infrastructural conditions are. And of course we will be working with them in developing needs assessments and mitigation objectives and programs. That's really about it. I appreciate the time and perhaps now is a good time to answer questions or if there aren't any, I will turn the time back to Rees.

MR. REES MADSEN: Thank you, Bob. We will have time at the conclusion of our presentation, I hope, for some questions and comments here, I see Hank nodding his head Yes, so we'll move ahead on that basis.

The last few items that we'd like to cover involves the White River Shale Oil activities to date, some future plans, and then also just a few comments and conclusions. I think as you have heard our presentation so far you've gotten a pretty good feeling for the kinds of activities and programs that we have been involved in. Again we do have the office in Vernal, Utah; we've made a number of contacts with local and state communities as far as this report is concerned, as well as our general relationship in trying to work out some of these problems. We have prepared the Detailed Development Plan from which the manpower estimates have come from, and then of course we've prepared the community and infrastructure support study. The topic that I'd like to spend some time on the next couple of minutes involves the construction camp, which is one aspect of mitigation that we have some direct control over and also feel we bring some expertise to in so far as handling population influxes, etc. This slide shows the relationship of the proposed recreational vehicle camp and the bachelor camp to the operation site that we discussed more fully yesterday, and of course this is the boundary of our tracts, which places these two particular construction camp elements within the boundaries of our lease tracts.

We've worked with our prime engineering contractor, Ralph M. Parsons, we've had the opportunity for dialogue and for their input to what this construction camp should look like, and a number of concepts or criteria or objectives have evolved

in our discussions. One is that in regard to the camp we'd like to be looking at a phased construction; that is, not plan on building everything that's going to be required at the first, but rather have the facilities grow and contract based on our needs and based on the direction of the program. Looking at modular kinds of facilities with the idea of simple construction, simple erection, and some flexibility in moving things around if we have to. Environmental impacts are always of a concern and of course in a camp situation we're talking primarily about the sanitation kind of requirents and the general safety and environment that these people will be living in. The aesthetics, again our No. 1 objective is to attract and retain people of a quality that we need to have in order to carry out our pr"gram, and aesthetics from their perspective is important, and aesthetics from our perspective as far as the camp and the impression that it leaves on the government, the lessor and also the public at large is very important. Recreational facilities, of course there is some hunting and other activities like that in the area, but there is always the need for providing some things that can be done on-site and provide some diversion from the work-day. Convenient access. We don't want to have it so difficult to get there and get out that people won't want to live there. Then of course economically of course we'd like to have it be cost-effective. We'd like to get the maximum benefits out of that camp for a minimum kind of costs.

To date we've looked at a number of concepts and what I'll go through is the recreational vehicle camp, just some of the ideas we've looked at and then spend additional time on the bachelor camp. Again we're looking at a phased approach and we're concentrating right now on the Phase 1 requirements, and to date we've identified the need for probably about 225 RV kind of pads to accommodate about 225 people, and the main feature on this slide is to just give you a feeling of the existing road system and then a concept as far as providing for the construction of those 225 pads and plus some expansion potential as well. Again this would be on tract. As far as the bachelors' camp is concerned, the main feature on this slide is something that's hard to see but it is the backdrop of the expansion potential of the camp where the light brown represents roads and dark brown represents living quarters and it shows here how we have a phased approach which utilizes part of the master plan in moving ahead. This represents housing for approximately 675 individuals. And then expansion into a Stage B would accommodate approximately another 450 individuals, again using modular units, not a row kind of concept but cul-de-sacs and what we think would be some pretty aesthetically pleasing kind of attributes, and then as far as Phase 1 is concerned current thinking is that we would be looking at maybe another 375 capacity units in this area, again following the concept of expansion and keeping the area still nice from the standpoint of being appealing as a place to be and not feeling like you were in a barracks context, but also allowing for growth and contraction as the case might be.

Then this will be showing it all together for Phase 1 with capacity for approximately 1500 souls in the so-called bachelor camp and then the last slide shows how this might be expanded to include the development in Phases 2 and 3 for the peak type of construction requirements. So we're pretty excited about these concepts of course we're still in a conceptual stage, we're involved now in traveling around, particularly in the western United States, touring camps,

looking at them, trying to collect as much information from the experts as we can so that we can move ahead and make this reach the kind of objectives that we're interested in reaching.

As far as future plans are concerned, what I'd like to do is go back to a slide that we talked about yesterday and use this as somewhat as the point of departure for our concluding remarks. But again we are looking at having our assessments undergo discussion, and again we're not so presumptuous as to consider that the listing of needs, the requirements associated with our project as we superimpsose them on communities is completely accurate and completely in keeping with the philosophies of those government agencies insofar as delivering government services is concerned. So we see a real partnership relationship here and we believe that with our previous activities and in the future we will be able to augment that and make that be a real working relationship and not just a discussion relationship. Some assessments may have to be revised, particularly on our basis. There may be some changes in manpower buildup, as we are in communication with affected communities we'll keep people informed about that so that they can in turn determine how those changes might affect the needs they have identified resulting from our project, and again we're not in a position to take away the prerogatives of local communities in delivering government services, but we hope to be able to help work as some of these needs are identified.

And then finally, of course, the most important thing is the development of mitigation plans which we see first being developed from the list of needs that the local and state communities and government agencies have developed, and then in concert with our corporation, plan on ways in which we can participate in making sure that those plans are implemented. And as Bob mentioned earlier in the presentation, and as Mr. Dewitt John mentioned yesterday, one aspect that follows through this is really trying to make sure that the assessments that we've prepared are correct, and we plan to do that through appropriate kinds of monitoring programs which would allow us to know what actually has happened as compared to what we have projected would happen.

So by way of conclusion, I'd like to mention that we are in support of Governor Matheson's statement yesterday, we're still reviewing the text of his written statement, that we are part of the Utah approach and plan to be an integral part in cooperation with the State of Utah in developing mitigation plans. We also have been in touch with the local communities and the county in Colorado and we are going to make contacts with the State of Colorado specific to this particular area, and there again we express our agreement with Governor Matheson's statement that this is really going to require the cooperation and the on-going dialogue between both industry as well as affected communities. We always dwell on the negative aspects of a project and I think just to have things in perspective that we probably ought to realize that overall we will expect to have some very positive aspects come out of our project. We're looking forward to the opportunity of developing a new resource and also as residents of the states and communities that are going to be affected recognize that the opportunity for increased employment, increased tax revenue, and the opportunity for additional businesses and this type of thing should result in some very good and positive things resulting from the development of Tracts U-a and U-b.

That concludes our formal presentation. We hope that it has been informative. Some of it has been repetitive from yesterday and some of it for those of you who have studied our document, it is included and in some cases duplication of that material. At this time, Mr. Chairman, I'd be happy to respond to questions or enter into discussions as you might see fit. Thank you very much for the opportunity to be here this morning.

MR. ASH: Thank you, Rees, for an excellent presentation. I think at one time or another you've briefed this Panel on every aspect of the White River Project at every stage since you came on board and whether it's been technical, environmental, or socio-economic you seem to be an expert on all of them. You do a good job. Thank you. I think that what we should do now is just go ahead with the report and questions and comments from the Socio-economic Group, and that includes questions to Rees and the White River group. If you want to handle questions now before we go into - Our Socio-economics Workgroup has been without a regular chairman since Burman Lorenson has left the Panel and Federal employment the group, however, did get together and review all this material and they have at least a temporary chairman today to introduce their comments and discussions, and that's Jack O'Brien from the Department of Energy. Jack, do you want to take that over, and please feel free for your members and any Panel members that have questions of White River, I didn't mean to cut that off, whenever questions seem appropriate to them.

MR. O'BRIEN: The leaderless committee, the Socio-Economics Committee, ganged together yesterday at lunch and had quite an interesting discussion, very gentlemanly, well ordered, although there was some disagreement from various and sundry people, we did learn a lot from each other. I would like this morning to ask the two people who represent the States of Utah and Colorado to summarize the report or the comments that they have submitted to the Panel and then we'd like to have the county representatives involved make any comments they would have and I'll try to summarize a little bit at the end of that. So if we could have Brec Cooke give us a brief description of the comments made by the State of Utah we'd appreciate that.

MR. COOKE: Well thank you Jack. I'd like to defer to Gary Tomsic, who is Deputy Director of our Department of Community and Economic Development and the Chairman of the State Socio-Economic Impact Team that has reviewed this document to give the State's views on the infrastructure and support study. Gary.

MR. TOMSIC: We appreicate the opportunity to take a moment and comment on the community infrastructure supplement that was submitted by the White River Oil Shale Project. Let me preface some of the specific remarks that we have by saying that generally we found that the socio-economic information that was presented by White River was done very well. It was a comprehensive document. I think that the contractors who worked with White River to do it presented it in a way that was very understandable and in terms of the documents that we are used to reviewing, this one I think was a cut above what we have seen in the past. And so we are generally very complimentary of the work that we were allowed to review, and also I think the people who have offered it to the State and various state agencies to review have done it in a very open way and working with Rees

and others seem to be very seriously interested in working with the State in the area of socio-economics. And so we have approached our review as one from the point of view that we are beginning a relationship that will continue between the State, the project, and local governments for the next number of years.

The other thing is that we did not review this document as a mitigation plan and as such are not addressing mitigation issues. We feel that it was pretty much an assessment of impacts and a description of the existing environment and have reviewed it from that point of view. Mitigation strategies, we feel, are determined with local officials and the project and with the State's involvement and that is a step that should come next. So we did not address it from any problem-solving point of view.

There were some specific concerns we had. Some of them may sound a little bit picky I think that there are perhaps some major areas that the state and local governments and the project ought to discuss in the future. Let me just run down some of our general comments. We felt that the population projections as presented in the study ought to be presented by age and sex so that we might better plan for health, social services, and educational services. Secondly, we felt that workforce projections should be presented by the types. The study does not address the issue of labor force recruitment and training, that is, it does not specifically address that as an impact on the community, and I think that there is a potential problem in this area because of the size of the workforce that's going to be required and the type of skills that are going to be required for mining and other activities. That, combined with the competition for those same skills in the surrounding states and other parts of Utah could create an impact and it would be well, I think, to look at the issue generally and as it specifically might impact any of the local educational programs and any training that might be required by the area vocational center and others. Thirdly, our observation was that population impact described for Rangely, Colorado, is higher than in any of the studies that the State has completed to this point. We do not particularly object to 24 percent of the population going to Rangely. There is just a question as to why that figure, why 24 percent, when the the State's numbers are usually 8 to 10 percent in the projections that we have done on synfuel development in the Basin. I think that that's an issue that just needs to be discussed with the State, our planning office, and we need to understand better what assumptions went into that so that we can correct either of the models for future projections.

In the health care area the study in our opinion did not adequately address public health issues. It did address primary health care issues but in the general area of public health I think there needs to be an assessment and some statement of what the potential impacts might be. On a nit-picky point, the physician ratios that were used in the study were much too high. It indicates that there would be a need for 39 doctors in the Basin and by any rural health care standard in our state that would be more than enough physicians to handle the need, and so I think we are working now with the rural health care people to provide the project and other projects with a better standard than the one that's being used.

The wage information needs to be presented because one of the impacts that was felt throughout the community is that which occurs because of income disparity, and that needs to be identified as an impact, and because it will be helpful to those who will be responsible for looking at the housing situation and other effects that it might have on the service work categories and that kind of thing. I think that it is a typical impact that needs to be addressed as an impact and recognized by the project.

The implication in the document that the bonus payments in trust for U-a and U-b woul be used primarily for mitigation may or may not be realistic. We have no control over that. That will be a decision that will be determined jointly by the Governor and the Legislature. Our concern is that to assume that that will cover the mitigation requirements in the area would preclude looking at any other alternative or alternatives, and we would suggest that we would proceed from this point with the assumption that they may be available, but not in the total amounts, or some sort of assumption like that, so that we can look at other ways of solving problems as well.

The statement that counties and school districts will have adequate property tax revenues to take care of long-term needs, again, is a generalization that continually occurs in socio-economic assessments. That is not entirely accurate. I think that projects, not just this one but major projects in this state should be aware that Utah law places revenue limitations on counties who have their assessed valuations increased beyond and above a certain point within a certain period of time. So sometimes where there exists the potential tax base that it would seem that a county could access they cannot in fact do that because they have limitations. I think we generally, it's not a specific comment on this project, but in the state we generally need better fiscal impact assessments than just straight-line projections on assessed valuations and mill levies.

The law enforcement standards that were used by the consultant for this project again according to our Council for Criminal Justice were not applicable. Fire standards have changed and so they need to be looked at, and court facilities per se and programs were not addressed. I don't see that as a major problem but I just point it out as an area that is traditionally addressed in socio-economic assessments, and one that probably needs to be reworked in this one.

In one section of the report it discusses how water systems will be financed in Vernal. It says that the water system will be built from revenues from water rights. I don't think that that is an accurate statement and I may be wrong, but I'm not aware of Vernal's intention or any other community's intention of constructing water facilities by selling the water rights or in any way raising revenues using their water rights. That would make more sense if it said revenues from the water system but I don't know if there is a misunderstanding there or just what happened, but I would be interested in knowing what the intent of that was.

The issue of providing permanent housing, I think, at affordable levels is a major concern. The idea of the construction camp was presented, but the need to address the issue of permanent housing and especially the idea of affordability

is an impact that is felt very early on in major projects, and needs to be identified as an impact so that we can discuss some potential mitigation alternatives. The construction camp siting and construction, we're suggesting be coordinated carefully with local governments. It is my understanding that that coordination has already occurred and so it seems that that, at least initially, is going well. Those are the kinds of comments that we had. We are making them in the vein that we're interested in sitting down with the project's staff and trying, to if there are some errors, to correct them and to assist them in providing information and data that can bring the document up to at least what we feel it ought to be. So the Impact Team looks forward to working with the White River Oil Shale Project in doing that. I'll leave a copy of this with somebody for the record.

MR. COOKE: Thank you, Gary. At this time I'd like to have Dewitt John summarize the comments by the State of Colorado.

MR. JOHN: I have a question before I start, a question for Rees or Bob Pratt perhaps. The report which you gave us addressed the impacts that the population increase and the needed facilities that you expect might be needed, and I understand the next step is to get into the needs assessment and mitigation plan, but it would be helpful to me and perhaps to the other members of the Panel, especially since I'm not sure when this is coming in front of the Panel again, to know what the company's policy will be as you approach the question of mitigation. Specifically, if it were to appear when you have agreements on population and needs and all that, if it were to appear that Utah communities lack adequate capacity to serve population attracted by your project, and if the lease bonus and expected revenues that will be created by your project are less than the cost of providing those facilities, does your project feel it has the responsibility to fill that gap either by itself under current law, by itself with new Federal laws that have been proposed to give you tax credits or something like that, or do you feel that is the responsiblity for state and local government?

MR. PRATT: Dewitt, to answer your question, basically we have no corporate policy at this time, and the reason we don't, I guess, could be summed up again by what Rees has said, that we don' feel we can speculate about something that we can know for sure as we go along. We've gone out and we've bought the land in case we need it. We've gone along with what the county would like in putting up one community instead of a separate community as has been done elsewhere, but I think those are things that we can look at as we move along and that's why Rees in his presentation put it that way, that we would look at our needs and see what the problems are before we determine what the remedies should be.

MR. JOHN: Well I will ask a follow-up, then. When you do develop a corporate policy would you expect it would be applied equally to communities in both states?

MR. PRATT: No, I don't think that - it depends, when you say what the policy is. The policy could be very broad or it could be very general or it could be very specific. I think the needs of the two states are different. Likewise I think that the things that can be done by the states or the communities themselves

back to White River and various avenues such as prepayment of taxes or things like that are very different, so I think we have to look as we move into this rather than setting down in a black and white today what we are going or what we are not going to do.

MR. JOHN: Thanks very much. What we did was to put down some comments. Well first of all, there is in the record from the hearings statements by the county and the town of Rangely. I also have here some comments which were put together by the State Impact Assistance Division, which I will give to you and you can enter into the record. I guess we agreed with Utah that we thought this was a very good start and what we did was to phrase some comments on the document which we cast in the form of Panel's recommendations, and I'll give them to Jack and let you all, let everybody decide what you'd like to do with them, but let me just read them to you.

The Panel recognizes that geographic dispersion of the oil shale industry is a very healthy thing both as a way to build a strong regional economy, and to make it easier to assess economic impacts. The Panel appreciates the White River Shale Project's constructive approach to socio-economic issues as evidenced by their preparation of this very good report. The report is a very good start using sound methods to project populations and analyze socio-economic impacts. The following shortcomings should, however, be noted in addition to those that Gary Tomsic made. The first one I have listed here I think he already has raised, the fact that it does not address in any detail at all the need for permanent housing. Secondly, the report erroneously assumes that any current excess capacity in Rangely will be available for handling White River Shale Project impacts. This current excess capacity and plant increases in capacity are committed to other projects, they've been financed by expenditures from the Oil Shale Trust Fund using revenues from other oil shale leases, not U-a and U-b, and they have been financed by other energy projects such as the Moon Lake Powerplant. That may well be true in Vernal also, I don't know, whether your excess capacity over there is available for this project or whether it is committed to other things. Further, there may well be important impacts on Dinosaur, Colorado, as we discussed yesterday, and we would urge you to expand the area to include Diiosaur and to include Dinosaur on your maps and to be very careful and very conscious of any impacts you may have on that little town.

We commend the willingness of the White River Shale Project to conduct discussions with local and state government in Utah and Colorado, to define costs of the required infrastructure or the availability of revenue to fill in any gaps. The Panel notes that White River Shale will make commitments to mitigate socio-economic impacts in Utah as you pass through the permitting process in that State but there is no comparable process to negotiate mitigation measures for Colorado. This is an excellent illustration of why, although the responsiblity for managing socio-economic impacts lies primarily with local and state governments, there should be in some cases limited socio-economic stipulations in Federal leases. The Panel recommends that the Secretary include appropriate stipulations in all future leases. And finally the Panel recommends that the Oil Shale Office approve the DDP with requirements for first monitoring your project's workforce, age, family composition, residence, type of housing, and

other things like that, and secondly, monitoring the impacts of the construction workcamp and the residents in that camp may have on communities in Utah and Colorado.

MR. O'BRIEN: At this point I'd like to hear from the county government of Uintah County. Neal, do you have anything to add?

MR. DOMGAARD: I think we pretty well summarized it yesterday, as the group did meet, and I think that our feelings were expressed in fact, as you had these two gentlemen present them.

MR. O'BRIEN: Thank you very much. Duane, from the Colorado county involved?

MR. REHBORG: Well I think just a couple of things here. The Rio Blanco County's position is based on those hearing records from the town of Rangely, the State of Colorado and Rio Blanco County. In regard to the breakdown and the workforce distribution found in the model, I think any model can come up with one that may be 24 percent or can be less. I guess it shows my own personal philosophy about models in general, and that is, go ahead and use them but don't trust them. The study basically from our point of view emphasized Uintah County and did not give the same consideration for Rio Blanco County or the community of Rangely, and I think if you read that study through it is very obvious in some of the charts that are found for Ashley Valley are not available for the Rangely area. To sum it up, I think there is one quote that is found in the study that I guess helps us to feel the way we are reacting here, and that is, and I'll quote: "The capacity of Ashley Valley and Rangely to raise the present level of services and accommodate the increased needs will be enhanced by the increased revenue generated by the incoming population." Now I guess your attitude can somewhat fluctuate depending on whether you have the tax base for the plan or you don't have the tax base for the plant. It's statements like that that are found in the study that we had some problems with. Basically that's my comment.

MR. O'BRIEN: Well I guess to summarize - are there any other comments from any other members of the Panel? Pardon me, John.

MR. MOSLEY: Jack, I just had one observation. I was pleasantly surprised at the quality and certainly the apparent sincerity of the White River Shale Project Corporation in putting this report together on a comparatively speaking analysis as such. I did have one question in reference to the model or the standard that was used to determine the number of workers, or professional workers, for example, the number of alcohol abuse counselors and mental health workers. What model or standard was employed in developing that particular statistic? On page B-14, detention facilities and social services primarily. It indicated one counselor for 10,000 population and for youth employment counselors one counselor per 10,000, and youth guidance, one facility for 50,000 population. Where were those standards obtained from?

MR. DUDIAK: I'm on the Socio-Economic Committee for the White River Shale Project. If you look on Table A-3 we have the existing comparable and proposed

standards listed for alcohol rehabilitation centers, youth services, and day-care services. There are not a lot of sources available and so what was used were very limited sources and it was from there the existing Vernal capacities and their social services and one or two other sources that are available that were used to come up with that average. They are by no means the definitive answer in the social services areas. The area is a very limited resource, as far as sources go, for that information. If you have something better we would be more than willing to use that.

MR. MOSLEY: We know it is somewhat of an guesstimate but I think that when Mr. Tomsic referred to the fact that 34 physicians would be most impractical, even though we desire that kind of thing, but for rural areas some figures may be distorted just a little bit.

MR . DUDIAK: National standards were used in a lot of cases because those were the only things that were available. We did point out, particularly in the area of police where that is not a good standard in the rural areas. We recognized that but we had nothing else better to use until we talked and discussed it with the local communities we went with that particular standard. We do recognize that in a lot of cases it is high.

MR. MADSEN: We will get a list of the specific standards that were used and the references and provide that to Mr. Ash for distribution to the Panel.

MR. REHBORG: Jack, Brec had a comment or two.

MR. O'BRIEN: BREC.

MR. COOKE: Thank you, Jack. I wanted to just comment on a couple of things, one that Gary mentioned and one that Dewitt mentioned. First of all, with respect to addressing the permanent housing issue, I think the IPP experience, recent experience, has sensitized the State to this particular issue, and I think that we would put it first on our list of the kinds of things that we would hope the White River would address, not just in terms of the impact to the community but in terms of the overall productivity that it would mean to the project, and I think that is some of what the Governor was trying to say yesterday, at least in his written statement with respect to the value to the company of addressing these things early on. An interesting comment along that line, and if I'm wrong, Gary, you can correct me. It came out at the State's Socio-Economic Impact meeting earlier in the week, with respect to our evaluation of the Alberta process - at the Athabaskan tar sands there. During the peak construction phase there was something like 4,000 workers at the peak period. When they did an analysis of that they found out it was really 16,000 workers because there was a 400 percent turnover in addition to the huge influx of people and the principal reason behind this was the inadequacy of housing, the people being unhappy with the living conditions and moving out. So addressing the housing issue at the early stage, both for construction and what permanent housing may be available to workers that may become permanent rather quickly I think is very important, and I wanted to stress that.

The second point is with respect to the excess capacity, and I think that we need to point out that just because excess capacity exists in a community it doesn't

necessarily mean that it's there for anyone in particular. I think that an argument could be made that after all these projects are said and done, that they should leave the community with precisely the same ratio of excess capacity as when they started, and whether or not the local community agrees with that or not, I think is open for negotiation, and what excess capacity is there ought not be taken for granted. I guess that is what I'm saying, and it should be a part of the negotiation process with the local community. I just wanted to make that comment. Thank you, Jack.

MR. O'BRIEN: Any further comemnts from the committee members? Well I guess in summary we can say that the subcommittee or the workgroup was very appreciative of the quality and the quantity of the work that was done by the White River Shale Oil Project in doing the socio-economic study. The one area that they were most critical of was in the lack of addressing mitigation techniques, procedures, and requirements, and I think you left yourself open for this by saying rather offhandedly maybe that, "Gee, there's no problem in Rangely, they can handle that with their excess capacity easily." I think all projects should be very careful in making statements of this type and looking at a community's excess capacity and saying that this is going to be adequate for our particular project. It brings up the problem that we have in the fact that any one project can estimate their impacts and can take a look at the potential mitigations but there's no mechanism that exists, and I think this is inherent in both comments from Utah and from Colorado, there's no mechanism that exists for looking at the overall impact of all shale oil projects, all energy development projects, all major industrial projects. This is something that I think is beyond the purview of the Oil Shale Environmental Advisory Panel but it should be called to the attention of those agencies which are trying to develop this type of thing, the energy resources and whatnot. I don't know how that is goign to be addressed but I think that should be reflected in the reports of the Pnael that go forward to upper echelons. I think that the recommendations that DeWitt made that he wrote out here are generally those agreements or the consensus that was reached by the workgroup yesterday, and I would submit these to you, Mr. Chairman, with the recommendation that these be included in the report from the workgroups, that we do approve the DDP but we do make some effort to establish some monitoring process so that the distribution of population and impacts and mitigation can be followed. I think that's the key element that we're looking for from the viewpoint of both states and from the counties. Now if that's wrong, I'd like to have any comments from any of the committee to modify that. Those are our recommendations to you today.

MR. ASH: Okay, I think we ought to ask Pete, especially in the light of the things that are suggested that be required, whether those are the sorts fo things you feel you can require in the DDP approval.

MR. RUTLEDGE: Okay Hank, we're into that. All comments here have been recorded by the lessee and the people in it and we've got them and we certainly will put them back to the lessee and we certainly will use them, and put them back to the counties who have them already, to those people who will be most in the process of negotiating what mitigation will be underway. Even though you can say that I really have no regulatory authority with regard to socio-economic mitigation we sure have a high degree of interest and I have one young fellow who does follow that. We have got to commit flat out to work with the counties in at least those

areas we can influence and that does address your comme"ts on monitoring. We see no difference between that and all the rest of the monitoring we have. The rest has gotten pretty sophisticated, we have not gotten that sophisticated in terms of socio-economic monitoring, but we are watching the current efforts, and those current efforts are both in Mesa County, or with the COG and other people in Colorado, with the Moon Lake Project on the monitoring that goes beyond just keeping track of the workforce which we can require. Certainly what the induced population with that workforce would be, how many family members, where they're living, things like that can be required, but we are more than anxious to work with everybody to get a socio-economic monitoring program that I believe has to be regional, and it takes in all of the industrial development that's impacting because what good does it do to know just what C-b is doing in Colorado if you don't know what C-a and the coal and everything else that's going with it. There is progress being made on that and we're watching it.

MR. O'BRIEN: I'd like to make one final comment, a personal comment, that I think it was an excellent job and an excellent effort on the part of the White River Shale Oil Project and personally I'd like to thank you for that.

MR. ASH: Okay. We have those recommendations from this workgroup. Does the Panel have additional comments or questions to Jack or on this matter? I don't seem to sense any violent objection to this. Unless someone indicates otherwise we will assume that we have achieved a consensus and the Panel thereby adopts your report and recommendations, Jack.

MR. O'BRIEN: You may never need another subcommittee chairman again.

MR. COOKE: Can I just say thank you to Jack O'Brien not only for chairing the committee but also to DOE who have been a prominent supporter of the state over the last four years now in funding most of the comnunity development efforts that have taken place out in the Uintah Basin. We certainly appreciate that and it's brought us a long ways, brought our communities a long ways and we know it goes beyond Denver, some people back in Washington, but we appreciate that effort in giving us this start, which has allowed us to be able to evaluate this kind of thing.

MR. ASH: Thank you all very much. We're going to take a break now for coffee in the lobby, and I should remind you that checkout time at the motel here is noon and they don't show much interest in being very flexible about that. Let's return here in 15 minutes.

Meeting recesses

Reconvening after coffee break, October 29, a.m.

MR. ASH: I will now reconvene this meeting of the Panel and we had scheduled at 10:15 a.m. an opportunity for public comments, something we always provide for in our Panel meetings. We have had no one make an advance request to speak to the Panel and I assume that everybody that wanted to say something about oil shale came to our public hearings yesterday. However, I would like to provide that opoportunity if there is any one in the audience who has comments they'd like to make, please come forward at this time. Seeing no reaction, we will return to the agenda, and to the item that was scheduled for the first thing this morning, and that is the continuation of the Panel review of the White River DDP, actually this is not exactly the continuation, we never did get to the workgroups yesterday, but I'll turn the mike over to Wally Hansen, who is the U-a/U-b workgroup chairman for the Panel. Wally.

MR. HANSEN: Thank you, Hank. I think we'll just go through these work groups in the order they appear here, but before calling on the first one I would like to get the ball rolling with a few comments of my own on behalf of the U-a U-b workgroup. My comments will be pretty innocuous. I think some of the groups that follow me will have perhaps more substance in what they say.

To start off with, I'd like to suggest the recasting of a couple of sentences. On page II-168, under Aquatic Systems. I think I would lose credibility if I didn't say something about this. This is the second paragraph under 2.5.5, and it says, this is only a suggestion, "The White River headwaters originate primarily" - I would delete 'primarily' - "in schists and granite" - I would delete "schists and granites" and substitute "lithologically diverse rocks on the White River plateau in Colorado." Actually there's a great deal more there than just granite. "The geologic character of the drainage basin changes rapidly" - delete "to calcareous sedimentary rocks" because there are a lot of calcareous sedimentary rocks in the headwaters. So saying, "The geologic character of the drainage basin changes rapidly as the river descends into Utah and the oil shale tracts. In the lower basin soft (add "non" to "marine") soft nonmarine sedimentary rocks, and Quaternary alluvium predominate." Now that's pretty innocuous, but it is a change of some substance.

In volume II I have a few little things. This is not meant as criticism. On page 4-71 regarding these midges, I think a lot of people may be a little jocular about this, but actually the midges are a very serious problem and I can testify to this, not from my own experience but from first-hand knowledge of other people that have had problems with these things. In one case a field assistant of a close friend of mine was brought in from the field due to a reaction to midge bites and one of my good friends was actually hospitalized with an allergic reaction to midges, so they're really more than just a nuisance and perhaps more so than mosquitoes.

On page 4-103, in about the middle of the page, under Permeability, and I wonder, I'm asking this is in all sincerity, whether some permeability might not be desirable in the processed shale to retard runoff and prevent erosion and to

encourage deep rooting of plantings and to discourage surface-ward migration of salts by capillary action. Rather than attempt, as it says, to permanently seal some of the processed shale. And in the next sentence, regarding leachates, I wonder if leachate really is going to be a problem in view of the aridity of the climate there, and the high evapo-transpiration rates. "Resistance to wetting," in the next paragraph. I was over in the Piceance Creek area about a month ago on a field trip with a group of people and we were shown an old spoil pile from some processed shale from an old retort and my gosh, this stuff was very glassy and clinkery after about 50 years I believe. So I think that this "resistance" property might in some cases last longer than one might otherwise suspect.

On page 4-128 regarding offtract enhancement potential, that's paragraph 4.7.2.5, to offset the loss of grazing land on the tracts, off-grazing allotments could be adjusted by the appropriate Federal agencies, and I don't know anything about the legalities or the complexities of this, but it seems to me that you might just be shifting the problem, and I imagine that the range is at its carrying capacity, and if you move the stock from one place to another you're probably just degrading the place where you move them and shifting the problem there.

Well getting back to page 4-87, in Phases 2 and 3, regarding these liners on the holding ponds. It says Standing water will be present behind the dam for a short time only, after a major storm, and there are three alternate ways of handling the impervious liners that are suggested, one of which is to use a soil bentonite liner and I think that's a standard method, but if the pond is only intermittently containing water for short periods I wonder if there might not be significant shrinkage in this bentonite liner, even to the extent that the shrinkage cracks might penetrate completely through the liner and the first flush of water might go into the substrate. Another possibility was to use the White River alluvium, and in reading through the geologic and soil descriptions I wondered if this would really be sufficiently impervious. I think the circulation rate might be unacceptably high, and I wonder if maybe consideration should be given to trying out some of the shale units in the Uintah Formation or maybe even bringing in some Mancos shale and blending that to provide a better block. I also wonder if using the White River alluvium, that's pretty prime habitat in that area and I guess in the event the reservoir is built then this could be borrowed from the reservoir area and so that wouldn't be much of an impact.

Again on the evaporation ponds, I just wonder if any provision is being made to discourage wildlife from lighting on these toxic ponds.

And with that, the first workgroup on the agenda is Air Quality and I understand that in that little handout you got there is a one-liner by Dick Strait that summarizes their views. This doesn't mean that or this doesn't reflect on the way they feel about it, it just reflects on their belief that the contractor has done a good job and they don't see any reason to add further comments at this time. But does anyone else want to comment on the air quality at this point?

MR. PHILBROOK: I've been in contact this week with the other two members of the committee,Paul Ferraro from the State of Colorado and Cary Gravett from the Bureau of Standards in Washington, and both of their comments were identical to

Dick's but a little shorter, indicating that in both cases they had reviewed the Detailed Development Plan and didn't have any problems from the Air quality standpoint. Just by way of an update on where the air quality process stands, normally EPA would have responsibility, at least in the past, to process the PSD permit. The permit application looks a lot like, and it's about as thick as one of the two volumes of the DDP and contains most of the same information. We have just negotiated a cooperative agreement with the Bureau of Air Quality for the State of Utah. They will be doing the technical work on this permit and there's a good chance that the program that Jim Godlove mentioned yesterday will be delegated to the State of Utah by the time the permit is issued. In the event that it is not, we will issue a simultaneous PSD permit with the Bureau of Air Quality, and that essentially is the mechanism that we'll be using to handle the air quality related issues. I think it is in general the desire of EPA where we have to just handed off a program to the State to not get into a mode of second-guessing their operations, so any comments that we may have will be provided to the Bureau of Air Quality and they will make the contact with the lessee. So that's it. Does anybody have any questions?

MR. O'BRIEN: I had a phone conversation with some of the people who were reviewing the document and the headquarters DOE and there was some concern over the identification of the emissions sources throughout the document. They thought that this could probably be beefed up a little better in terms of identifying the control mechanisms that are going to be used. My own view is that we're not sure yet what technologies are going to be involved and what subtechnologies are going to be involved in those cleanups, but that is something that we should look at, being very specific in what we're going to do with air emission.

MR. PHILBROOK: Could you follow those comments as to the State of Utah or both?

MR. O'BRIEN: Those comments will be forthcoming to the committee in the form of a letter before the close of comments on November 2. Those should be in your hands.

MR. HANSEN: Anything else on air quality? I believe Brec Cooke is going to speak for Deborah on water supply and quality.

MR. COOKE: Okay, thank you, Wally. The Water supply and quality workgroup met and as indicated in the preliminary draft of the advice to the USGS they raised three principal questions. The most important question and the one identified by the State Engineer, the Utah State Engineer, is with respect to the fact that the project has not yet obtained the water right to the water that they propose to use for Phases 2 and 3 of the project, and the engineer's letter pointed out that both the preferred alternative and the Green River alternative were unapproved. There is some question as to whether or not the Green River alternative to use Bureau water out of Flaming Gorge is available. There was a feeling that these issues need to be further clarified in the DDP. We've been working closely with the project in terms of the White River Dam and in terms of the water rights, and we are still hopeful that the White River Dam, since it's a State sponsored project will be built, and that sufficient water will be available there. If it's

not, in terms of other possibilities, we'll be into a more or less conventional water marketing system process and I think it would be the feeling of the State that the point of diversion and the exchange of ownership, or assignment of water rights rather, could be effectively implemented to provide the water for the project. Probably the biggest outstanding concern at this time as you are all aware, is the biological opinion with respect to the endangered species. That we're anticipating early after the turn of the year.

The third area that the committee workgroup commented on was the impact on ground-water quality, and it points out that the DDP recognized the impact but there was not any discussion of the significance of this impact. They felt tnat the ground-water quality would be a major issue and they'd like to see some substantive analysis of this issue. We might suggest to the project that they contact the Utah Geological and Minerals Survey again and the Water Resources Division. There has been some groundwater work done and it is an imprortant question, the impacts of ground-water quantity on through groundwater quality. A sensitive issue particularly in the first phase with the groundwater withdrawals.

That is essentially the report of the Water Supply and Water Quality group. If there are any other members that have any comments.

MR. O'BRIEN: Again, if I may refer to a phone call from the headquarters people who reviewed this in a very, very quick, rough and dirty manner, they wanted to point out one area where the monitoring wells in association or in connection with the disposal piles, the location of those wells is not very well specified and the use of those wells and the monitoring of those wells should be very carefully identified. They also in their brief look were a little bit confused on the various water streams within the project, the processed water streams where it was going to wind up back in the retort, and they wanted to particularly caution that these streams be well analyzed and that we aren't dumping anything, sludges and that sort of thing, into the piles which could be harmful, toxic materials.

MR. COOKE: I might ask an additional question of Colorado. I noticed that in the testimony in the evening hearing in Vernal that Rangely City made some comment with respect to the impact of withdrawal of water from the White River or at the dam on the water rights of the City of Rangely. I was unable to stay in Vernal for that hearing, and I was wondering if someone from Colorado might be able to clarify for me and for this group that concern. I recognize that no representative from Rangely City is here.

MR. REHBORG: I don't think that I could clarify any further than what you find in the copy of the public hearing. You have a copy of that (yes).

MR. ASH: If White River wants to respond to any of the comments or questions that come up I want you to feel free to do so at this time or at any time during this part of the meeting.

MR. HANSEN: Anything else on water supply and quantity? Grant or Carter, do either one of you have some pearls for us from your workgroup.

MR. DAVIS: Yes, we have a very short report. When the committee members got together and had a discussion we had several questions but after we had talked to Cy McKell on the surface disturbance and rehabilitation aspects a lot of our questions were answered and I think that it might be well to have Cy McKell go through some of his slides to better explain his plan and what has been done and some of the results of his research efforts at this time before we give our final comments.

MR. HANSEN: Cy McKell.

DR. McKELL: For the past 5 years we have been conducting studies, as Jim Godlove mentioned to you yesterday, looking at two problems. One is the reclamation of disturbed sites without shale, we have published a number of reports on that. It is fairly straightforward, even though it's a tough climate, we have good success on that, but the problem of rehabilitating processed shale disposal areas presents another question and with the limitations of low precipitation, limited amount of topsoil, the water question, we have approached the reclamation of the processed oil shale piles in an entirely different fashion from that which has been followed in Colorado where the ability of reclamation specialists is enhanced by a different set of climatic conditions, particularly if you are looking up on top of the Piceance Basin. So we initiated a number of studies at a research site north of the White River, a place we call Section 6. It's in Section there on private lands, and the amount of shale we had to work with there was fairly limited, and the kind of studies we undertook there involved specific kinds of questions that we were running in cooperation with a number of green-house studies. Again looking at leaching, physical and chemical breakdown, plant tolerance to salts, a number of very detailed questions. All of those studies did not have the advantage of more of an operational site and an operational condition. So we approached the Paraho people with the possibility of using what you see here is the compaction study conducted by Woodward and Clyde. It's near the housing area at Anvil Points just before you go up the hill to the retort. The area is about the size of a football field, about 8 feet deep with shale, with various origins, but when the study was finished the area was top dressed with about 18 inches of fairly typical run conditions, the retort conditions were fairly set and so the surface material we would consider would be fairly typical of a Paraho run. So that's the location then of the experiment that I will show you this morning. We're excited about the results, we're confident that we've approached a good solution to some of the problems. That's what I want to show you now in the next 7 or 8 slides.

First of all, the concept is one that follows the schematic design that Jim showed you yesterday, with some exceptions. First of all, it's not a nice, straightsided trench. It was built with the tip end of a road patrol grader, and it has some decided advantages that it can be operationalized with the equipment that would be expected to be available on site, it gives us more of a gradation of the soils moving against the shale. We have, as you would see right here, a water harvesting slope and the topsoil placed here with a front-end loader but it could be very easily spread with a belly-dump disposal truck, and we wouldn't be so worried here about the uniformity of the nice sides, and it gives us just the kind of thing that you might expect in operation. We conducted a number of studies on these slopes, using different surface treated materials to get water

harvesting from that area, this is two meters long, it is a meter roughly across here. We were harvesting salt from the surface but not in any concentration to be phytotoxic to the kinds of plants that we put into this trench. The soil is basically a clay loam, fairly heavy clay soil which has a fairly good water-holding capacity. So that's the setup, the concept of water harvesting, concentrating our topsoil in an area that can do us a lot of good, having edges that give us the opportunity for the plants to move out into the area. There's the concept. Now let's look at the results.

This is the way the area looked two years after planting. The plants here were taken from seeds or cuttings from the area according to our previous research, grown in containers and transplanted into this trench in early spring when the moisture was favorable in the trench. And you see some salt coming up through capillary rise in the areas that were basically not so compacted. There are some interesting things that we're learning here about capillary rise and such. But the most important thing is to see the kind of success we have here. It's 100 percent survival. No irrigation, no water even put on the plants at the time of planting because we were in moisturized soil. The species that are important here again and are of interest to us. There was greasewood, fourwing saltbush, shadscale, western wheat grass, prostrate (?) kochia, and I think rabbitbrush, all from the area except prostrate kochia.

MR. O'BRIEN: Your water harvesting slope is shale?

DR. McKELL: By the time we got the plants in, it was a nontreated surface. The materials that we used to what we call stabilize or seal the surface were not long-lasting. That was not the strategy to put down an expensive layer or one that would last a long time, but just to give us one year of water harvesting, and when that experiment was over we got good results with it, but by the time we're to this part of the experiment the surface sealing material was not effective. We'd learned what we needed to learn, but we're still harvesting about 50 percent of the water with an untreated surface. Does that answer your question?

Okay. We have conducted some other experiments which take the technology a little bit farther and here we have the success shown of plants transplanted directly in shale, those who would worry about the toxic properties of shale and plants' success there can be a little bit reassured that we have good success with, again, the range of species that I mentioned here, greasewood, here is cuneate saltbush and fourwing saltbush there. The western wheatgrass was not as successful in this situation and we have some death loss but we do have still better than 50 percent success with just planting plants on straight surface. And there you see a closeup of the cuneate saltbush, atriplex euneate, very common to the oil shale tracts in Utah.

Now we tried another strategy that gives us some hope of having tricks in the bag, you might say, to draw upon in the future if we have other problems with maybe a temporary stabilization. These are nothing more than the kind of trenches, furrows, that you would have in your garden, and we filled them with soil, here is the soil here, only about 3 inches deep, and this would be a little furrow with no soil in it, and we're getting a lot of annual weeds that go in to give us a temporary development of organic matter, call it natural mulch or

whatever, but it just represents what happens when you can do just a little bit of mixing. We don't have, you might say, a big strategy for this solution yet but we have a solution that we think is really interesting. Now to answer some basic questions about the strategy, such as are we collecting salt from, this is in early spring, this later dissipates with the next summer rainstorm. This is sodium carbonate that's coming to the surface, probably some sodium sulphate there intermixed, and we get a little bit of powdery on the surface and then later on when the rain strikes this we actually get a crust effect and so any problem with dust has pretty well been solved after the rain puts this flocculation, this surface accumulation, into solution. But our man here is digging down 20 inches to the bottom of the topsoil trench and we're picking up samples for electrical conductivity and pH right in the center, and then later on we sample it right at the edge of the shale and then right at the edge of the soil. What we're finding there is a moderation in the pH under the surface and the EC of the shale. It's very moderate, about an EC of 8. Now the electrical conductivity of the shale as it comes out, when we started working with it, was +12, and the pH again was in a favorable range, somewhere in the range of 8, and that's very favorable for the kind of species that are adapted to that region.

Now one of the questions that people have often had, Well, will plants grow from this soil trench out into the shale? and here you see western wheatgrass with its rhizominous characteristics growing at the edge of the soil but definitely all the roots are in the shale, and as you see a line going sort of oblique, sort of like my hand here, and you see the roots below that in the shale. That may not be too convincing yet but I think this is of real excitement to the plant scientist to see not only just roots growing in the shale but the propagation mode followed by this species and that's a big fat rhizome headed out into the main part of that shale pile, meaning we could expect to see a lot of colonization of the shale away from the soil even though it may be a little bit too salty, that very surface area, for any seeds to be established of this species, but not too much for Russian thistle, for mentzelia and a number of other annuals. We have five different annuals now that have colonized the north side of the pile. So there essentially, we feel, is the proof of this. Now some people say, Oh, those roots are misformed, they're flat, etc. We have examined them under the microscope, there's no difference in the amount of root hairs or any features that indicate any difference in the anatomy morphology of these roots here versus those that are growing over there in the shale.

MR. ASH: Cy, excuse me. Was there any fertilization at all in these experiments?

DR. McKELL: No, we have not fertilized. Again, this is another strategy we find is important in terms of low-cost but effective strategy. These species all evolved in low fertility environments. Unless we have real serious problems later on in which we feel research needs to follow, we did not start with fertilizer.

MR. ASH: I recall some years ago people were saying that is spent shale sterile, you can't grow anything in it, without heavy fertilization, so I was interested in that aspect of the question.

DR. McKELL: I think the answer to that is that we may be expecting too much for the arid environment but the shale itself is not sterile. It may be sterile biologically and we have other experience with things like mycorrhiza initiation. We're as confident that mycorrhizal can stand for example. The "inhospitability" or the levels that are present in shale, and it will accommodate mycorrhizal reinoculation. I think we may have to fertilize some species depending on the situation. Which brings me to the last point and that is we have had discussions, we, that is, the research group with White River Shale Corporation, that there will be continuing studies to fine-tune, to really operationalize the concepts that we are demonstrating in the individual research studies so that we will be able to further answer that question, how much nigrogen, probably not so much phosphorous, perhaps potassium and maybe some inoculation, but not on a large scale. I think that is what I would stand on at this point.

MR. WADDELL: Have you had any success with species that appear to be important for big game species?

DR. McKELL: Yes, all the species we've considered here would be game habitat principal dominant species. Saltbush is one, fourwing cuneate, sagebrush, greasewood, big sagebrush doesn't have quite the high degree of tolerance to the salinity that some of these more dominant aliphytes have, particularly the chenopodes. I don't think that's going to be a problem in general, but it will be if we put too much stress, you know, on some strains of sagebrush. Yes, we have sagebrush growing on the tracts in Utah with good success.

MR. JOHN: Did you say that you started out by putting plants in the soil in the trenches?

DR. McKELL: Container-grown plants, yes. So we weren't seeding, and I think this is a big departure frmom the research conducted, sponsored by DOE in Colorado, and they were seeding on the surface of shale, and they got zero results, and we agree with that. There are good reasons for that. But it is a vulnerable period of time in plant establishment, and we can jump over that vulnerability and get some assurance with container-grown plants, but then expecting the moderation that takes place as you would see here under this cover of weeds in our transplants along the center of the row, the environment becomes moderated and we do expect seeds to become established later on, naturally, but not direct-seeded at the very first.

MR. JOHN: Is the project talking about covering the spent shale when they get up to Phase 1, using container-grown plants to put on the pile at that stage also, and if so, what are the economics of that?

DR. McKELL: At Phase 1 what we talked about mostly is getting into more research to fine-tune our strategy, to answer your question, and until there is a final surface I would not recommend at this stage the expense of container-grown plants, but I would suggest maybe we go to something like letting that surface be temporarily stabilized by some innocuous weeds, certainly not halogeton, that's not wise, but there are species in chenopodiacea that are nonmycorrhizal that are really aggressive things that could invade as we see here, and as we're

following on the north end of that disposal pile, where we don't have structured experiments but we have plant succesion, kind of plant invasion studies which are very exciting right now.

MR. DAVIS: Thank you very much, Cy. The comments of our committee after we talked with Cy a little bit was that maybe some of the details of this method of constructing the ditches and some of the results of placing the topsoil in the ditches and the effects of the change in water quality as it comes into the ditches and also the effects of upward salt migration should be addressed somewhat in the DDP, and the other comment that some of the committee members made that with the history of failure in the direct seeding of the disturbed areas, that it might be advisable instead of just seeding the area and then seeing if you hit the right conditions for it to be established that it might be good to combine the establishment of transplants with the attempt of direct seeding on the ordinarily disturbed areas, not the disposal pile of the spent shale. Are there any other comments from members of the committee or the Panel?

MR. HANSEN: I'd like to add my thanks to those of Grant to Dr. McKell.

MR. RUTLEDGE: While it isn't a comment, Grant, I just might bring up for the Panel's information one thing that interests us and we've been pursuing with the lessee and are going to pursue, as most of the revegetation has been done on what you might call least comparison of what it eventually will be, small-scale plots, and that's a necessity at this time. People do make the observation, oh yes, you can grow things with intensive management on these small-scale plots but what are you going to do on the big banks? Does the scale-up really hold? So we're most anxious and we'll be working with the lessees to identify an area in that Southam Canyon where the initial shale can be placed and we can get a relatively large-scale scale-up to demonstrate Cy's methods, you know, if that's what we're going to use. Also to try to get some final answers on the leaching question and to put in place perhaps an even more detailed monitoring system to test that out, in order to get some answers as soon as possible. Now that particular area, it's our hope could remain indefinitely, and would be available. I don't think we have found it yet but we're looking for it and will address it before we approve the Detailed Development Plan.

MR. FERGUSON: Just a comment. With regards to the cost of containerized plants and so on, we've done some work ourselves in some areas without being in the shale disposal area itself, but we have used these plants considerably over the past five years, and when you get to thinking about the cost of them and then you compare the success, ratio, I guess maybe what I would suggest is that maybe there isn't that big a difference in the cost, if you're selective. We've had some success in Mancos shale areas where we didn't have anything growing, we introduced some containerized plants and even though they were not protected from wildlife or livestock, they had very good success ratios, and we planted some very harsh sites not that many air miles from the spot we're talking about and had pretty darn good success with it. I think that certainly they need to be considered as a viable option on any revegetation program. They're not the full answer but they do provide some things that I'm sure that Bruce would have some real concerns about and interest in and that is the introduction and rapid

response for browse species, big sage, etc., we've used big sage, bitterbrush, fourwing, shadscale, a number of these that have done very well and in one year they look like they are about 3-year-old plants in some cases, and even on some harsh sites, so it does have some real interest, I think.

MR. HANSEN: Thank you, Lloyd. Other comments? I think Bruce Waddell was going to give us something for his environmental wildlife workgroup.

MR. WADDELL: Thank you. I have some prepared comments and they are attached or will be attached to the advices as are most of the other comments. As with other workgroups, we've already talked and started some discourses and answered some of the questions and started pursuing some of the answers in some of these comments, but I would like to go through this.

There are some major areas that we feel need to be clarified in the White River Shale Project DDP, Tracts U-a and U-b. One of the first is, it is felt there is inadequate data included to evaluate the impact the project has on raptorial species and other migratory birds of high Federal interest. We realize, by the way, that there has been a large amount of data collected already and I think we just need to have some of this put together and added or clarified in the DDP as was mentioned.

Specifically, the report indicates that one eagle's nest will probably be impacted by the shale disposal site. We feel map showing the location of the raptor's nest relative to the project's proposed development is needed for our review, and I'm referring to "us" in our sense as the Fish and Wildlife Service. A proposal for the mitigation of the golden eagle nest in Southam Canyon jeopardized by this project needs to be presented. Jeopardizing an eagle's nest still comes under the Eagle Protection Act and would be considered in that context, so I think we need to take a look at that. We've already talked to the company about this and they will arrange for it.

The comment was made it is possible some raptor nesting losses have already occurred. Apparently this is more a reflection of the amount of effort put into searching for nests, not necessarily on tract but offsite also, and possibly some accidental observations early in the project but we have started to talk about this.

The second major point is mitigation proposed, the objective of the mitigation and the expected benefits need further clarification. Some of the examples, winter range is apparently not the limiting factor on the deer herd and should not be a significant problem. However, construction of the White River Dam may cause adverse impacts, and this goes along with some of the enhancements which appear to be geared toward the increase of grasses at the expense of woody browse species. Past research has shown that woody browse species are a necessary winter food requirement for mule deer. I think we need to have some clarification in there as to what the exact objectives of the mitigation and what the expected benefits are. Again I think it just needs clarification.

A third point under mitigation, any type of vegetative manipulation or establishment is extremely difficult to achieve with the soil and climate characteristics

of this area, obviously. We talked about that, and we would caution that care be taken to insure that attempts to modify the vegetation or enhance it as reported in some places do not end up having negative results for wildlife.

We went through and tried to categorize some of the mitigatoon as either committed or noncommitted, and a lot of the mitigation is at this point still uncommitted. Committed mitigation amounted to four water structures in the Evacuation drainage, some air seeding of some areas in the Evacuation drainage to increase the grass to shrub ratio and adding four ponds next to four ponds in the Asphalt Wash. Uncommitted mitigation deals primarily with altering the grazing pressures on adjacent areas to release over-utilized areas on certain vegetative species. These mitigative measures are contingent on agreements with the BLM and stockgrowers. I think we need some clarification of the objectives as we have already indicated. And as Wally mentioned earlier, are there adequate areas to shift this pressure to or are we just going to have to eliminate livestock grazing in there, or reduce it?

The final point under this category is we should be considering that the greatest impact on wildlife, mainly human activity, will probably not occur on the project site but will result from secondary impacts of project development. The report indicates that the construction force will be approximately 4,000 people, we have heard that the total increase may be upwards of 20,000 people. Offsite recreation use, harassment of wildlife, new housing, new roads, etc., will be impacts from this project that probably will not be mitigated elsewhere. With the other proposed developments in this area, we should be considering development of some sort of an impact fund for wildlife for the region supported by these developments along with development of possibly a regional mitigation plan.

A third major point that we have already discussed several times yesterday and today also, a biological opinion has only been issued for Phase I relative to the aquatic species for this project. If a jeopardy opinion were to be issued for the White River Dam Project, are the White River Shale Project's alternative sources of water viable? I think we've discussed this. I don't need to go into it much further, but it needs to be looked into further.

Again I asked a question yesterday, will subsidence and cracking of material overlying the shale beds jeopardize the proposed White River Dam and result in either dam failure or water entering the mine area. We are concerned that the mined area could cause contaminants to enter the river system, and if the dam areas become unstable a large area has been needlessly impacted.

The final point I'd like to bring out is due to the size of the surface disturbance and expected future mining efforts in the region, revegetation is a critical issue for us. We are concerned that successful reestablishment of vegetation both on the disposal sites and large areas of surface disturbance on other sites in the project area have not yet been demonstrated. A monitoring program should address specifically the long-term successful establishment of native species on these disturbed sites and what criteria will be used to consider revegetation successful.

MR. HANSEN: Thanks Bruce. Bruce and Harold's memorandum I should have mentioned wasn't included in that sheaf of papers you just got but you did get a copy of it yesterday. Any comments or reactions to Bruce or anyone else? Okay, we'll go on to Transportation and Rights-of-way, Pattie are you going to speak for your group or is Lowell?

LOWELL MADSEN: I was just going to introduce Patricia to the group. There are two people from our committee who have asked to speak. Patricia and Duane Rehborg, so we will hear from them now, and then I'll have a couple of comments.

MS. KEYES: First of all I would like to express my personal thanks for being here and for whatever reason, Mr. Chairman, that our Department has not been active for months or years we apologize, and we're delighted to get the materials. I took the liberty of passing this material on to our Federal Highway Department. I thought their interest would be the most keen in this whole project. They gave us the findings that they have found. Have you included this, Lowell, in the committee work you all did last night?

MR. LOWELL MADSEN: The summary has, and I think you could include the whole letter to go in the package.

MS. KEYES: Well fine. I might read this very quickly. This is from the Engineering Department of the Federal Highway Region VIII, which is in Denver. Their first comment was, as an overall observation this plan provides a very thorough analysis of direct project impacts for the current stage of development. The plan indicates close interagency coordination so essential for successful development. (2) as the project progresses more definite assessments of long-range and secondary impacts would be desirable. I'd like to read these four items and knowing that perhaps you have at previous meetings on things that we have not seen have covered them. (a) actual travel demand forecasts resulting from plant employment and materials transport should be made and an assessment of impacts to the transportation systems performed, reference page 7-85 to 94. (b) The need for and environmental impacts of parallel facilities between the project site and Vernal should be addressed in the future, reference page 7-88 to 94. (c) the present availability of existing pipelines as opposed to construction of new facilities should be better defined. Reference pages 7-94, and (d) the secondary impacts of increased population on the entire transportation and related utility networks should be addressed.

Item 3, close coordination with the Utah Department of Transportation should continue, and I know that our Divisional Director in the State of Utah works closely with the Utah Department of Transportation . I'm sure they're on course on this.

I would like to add a personal comment if I might to the Chairman and to the Committee and all of you present, to the White River Shale people. I think, and correct me if I'm in error, I might be the only appointed-type sitting here, and most of you understand what that is, and as such, I would like to express something that I think Secretary of Transportation Drew Lewis and indeed I expect that President Reagan would say if they could get a birdseye view of this.

I think that you used the comment that this is the beginning of something good, and I feel that they would be very, very excited over seeing local government, right down to the grass roots, Federal government, all of our departments and divisions, the two states and possibly three states involved in this great project being represented here. Yes, we can sit down in a room, yes we can over months and weeks and even years work out problems so that we can go ahead and attack and address and overcome the problems of our economy and our energy, and I am going to be just delighted to take an on-going report back of this committee. What you've done now and certainly what it covers in the past that you have been doing, Hank, for years and years, I think the country owes people like you a great debt of gratitude. I'm excited because I have 10 states, I have two regions, and so I'm seeing different kinds of energy problems, different kinds of growth problems from the Mississippi River out into the Wasatch Range, and I wish that I could clone all of you and take you back and set you in other meetings and make this kind of an atmosphere an on-going thing. But it can be done. My thanks to you, I know the Secretary would thank you if he were here, and I say let's get on with it and let's accomplish it and whatever we can do to help, we will.

I have one other thing that I think I will get involved with some of you people. Highways is one thing. We're also interested in airports, and in a fast-growing area we are very concerned that bandaid airports don't work. This is what's happening in the mid-West, you almost have to take a ticket and line up to get into a small airport in Iowa. As we go west it is going to continue to happen, and this might be entered as an official comment, that the Department would be concerned about the growth of air traffic in the area and how we can address it and how we might help you all accomplish it because we've got to have room to get in and out. We feel this way when it comes to rail lines, we feel this way when it comes to pipelines. I guess the only thing we're not going to cover in our Department is the Coast Guard on these projects, and we might work that in eventually. Thank you so much. Do you have any questions that I might respond to?

MR. FERGUSON: You might tell Neal sitting right next to you how he can get some help on the airport.

MS. KEYES: Would you believe we've already talked?

MR. MADSEN: I don't know whether to get into the international airport on C-a or not. There is an international airport right adjacent to C-a. Duane?

MR. REHBORG: I have just a couple of comments. Basically my comments are feed back on Patricia's comments. The first one I believe that has not been adequately addressed is impact on the roads and highways from the tracts by the workforce to Rangely and the other communities, and second, the impact on roads and highways from the tract to the railheads. The third concern I have is along the same line of airports. I'd like to see some substantive analysis of the problems that I have mentioned included in the DDP.

MR. LOWELL MADSEN: Any other comments from the subcommittee?

MR. JOHN: I should just like to say, Lowell, I talked to our State Highway people and I was unable to find anybody in the State who had been in touch with the White River people. Perhaps they have been but they felt that the comments that they made earlier, especially with regard to transportation from the Craig railhead still stand.

MR. MADSEN: Brec.

MR. COOKE: Has White River used the transportation study that the State prepared or that the consultants for the State prepared? That's just a question, have you seen it? (Do you mean the one that the Wagner people put together?) Right. I wondered whether it was done in time to be of use to you here and if not, Bob then suggests that you incorporate some of that information in there. I guess we are particularly concerned about the impact on the road during the construction phase. In that you say you're going to bring construction materials in from Salt Lake to the construction area and it's not the best road anyhow, to be the major artery between two regional centers, Salt Lake and Denver, and to have the road impact with additional stuff will require some upgrading of the highway.

MR. PAGE: If I might comment on that. I'm Lowell Page with White River. We have to have our prime contractor, Ralph M. Parsons, worked with both the Colorado and the Utah State Highway people, with regard to the traffic and loads that we might bring across in the construction of the facility. We have not worked into details of upgrading requirements, if any, and things like that, but primarily in the area of bridge loading and the actual pavement loading and have worked on the tonnages and the single heavy loads that would be required. So we have a dialogue going, I don't want to say that it's anywhere near complete but we are working on this problem.

MS. KEYES: Lowell, could I ask you with whom you were working, I think I missed that - your dialogue.

MR. PAGE: I didn't say.

MS. KEYES: I just didn't want to backtrack with people that are already working.

MR. PAGE: I don't have it off the top of my head. We can certainly get you the names of people that we have been dealing with.

MR. COOKE: I want try to decide whether or the discussion of the powerline is a transportation issue or not (it's a right-of-way issue I guess), and from what I was reading or I thought I had read this before, I have a question. It says, "The transmission line will have sufficient capacity to handle import power of 120 megawatts," that's the transmission line from Moon Lake to the plant, to the substation, the new substation, and that would be constructed during Phase 1. The net requirement then during phase 3, the net power import requirement is listed at 150 megawatts, and the Utah Energy Office raised the question with respect to the power requirements, that if you are going to have to import up to 150 megawatts it might be advisable to put in a powerline to carry that at the

end, or at least to consider that. I know there is overlapping there and there is peaking power involved, and maybe that's clarified in there but it looks like it's about 25 megawatts short of what your net import requirement would be. Does that make sense?

MR. DONEY: I am the Project Manager for White River. The subject of power is complicated. In the first place, the only power we intend to build initially is the power supply for Phase 1, which is about 35 to 40 megawatts. Now we think, we have talked to our local power companies out there and we think we can build the structures, installating new wires and whatnot. When you get into Phase II and Phase III, structures for a supply up through Phase 2, and this would mean reconductoring the the subject gets more complicated because of the practical utilization of this off-gas, surplus off-gas produced by the plant, and we haven't solved that problem and we don't expect to until we have some demonstrations of just how much gas there is, what' the quality of it, and what's the proper use of it? We suspect that in Phases 2 and 3 we may generate some of our own power onsite with this gas, so to sit here today and say we need 150 megawatts and we're only building a line for 120 I don't think our need is that closely defined, and again it comes back to this problem of utilization of the resource. Does that help?

MR. COOKE: Yes, I can understand the problem that you have. At some point when the line's being constructed if it looks like you're going to need more power than the line would carry, it would seem it would make sense to increase its capacity to handle that possibility, rather than to have to go back and redesign it when Phase 3 comes on. It's pretty close, I understand what you're saying in terms of the off-gas, it may produce anywhere from 90 to 120 megawatts and that would solve it.

MR. LOWELL MADSEN: Anyone else? Looking at it from my perspective, from a legal point of view, it seems like the lessees understand their legal obligations to obtain rights of way and I'm sure will go ahead and do that as the need arises with respect to the offtract facilities that have to be constructed.

Can I digress a little bit. I guess if I had been here yesterday morning I might have brought this up and maybe I should have brought it up when we were talking more about socio-economic issues. Many of you remember back when the program was just getting started that GOREDCO produced a master plan for Rangely which included the transfer to Rangely of public land so that the town could expand. Building on that plan, and with some modifications, the Bureau of Land anagement has made available to Rangely a sizable tract of land for industrial purposes and also for residential purposes. One of the interesting features of the transfer is that it is a negotiated sale with the understanding that the town of Rangely would require the people who are developing the property to pass on, I guess is a good word to say, the savings to the people who are actually going to buy the houses, to keep the land prices down within a certain price range. A letter went out from the BLM Colorado State Division not too long ago which prompted a lawsuit by certain residents of the town of Rangely arguing that the transfer is arbitrary and capricious and that the appraisal was incorrect and they are alleging that there is plenty of private property in the vicinity of the town for development. This complaint has been filed. Another odd quirk is that although I think some of the local people have been served, but the Federal defendants have

not been served yet properly with a copy of the complaint, so we don't know what our status is, but the lawsuit is there in any event.

MR. ASH: Lowell, I do appreciate your bringing that up so the Panel is aware of what happened. I'm not even thinking about the lawsuit but just the fact that we have these on in that area, because that was a big question - as you are pointing out, 5 years ago, how on earth could a Federally land-locked community get the land they needed for expansion, and I'm delighted to see it happening and thank you for bringing it up.

MR. HANSEN: If there are no further comments, does anyone have any general comments on any part of the DDP that they'd like to introduce at this time? If not, I guess this concludes this session. I want to remind you that checkout time is 12 noon, for those of you who may not yet be checked out.

MR. ASH: Okay. We have then before the Panel this summary or advice memo proposed by this workgroup which would also provide or enclose to Pete, the individual comments from various workgroups. The memo would normally also say you have all the other comments that came up from the transcript of the minutes of the meeting. I'd like to know, I guess, what is the will of the Panel? Would you like it provided to Pete in that fashion? Do you feel there is anything else that came up that should be added to what the worgkgoup has provided us at this point? I guess we have copies of all the individual workgroup reports. Do we have the Highway comments?

MR. MADSEN: Yes, the summary of the transportation comments are in this and we're going to make the letter available to include in the package along with the other things.

MR. ASH: Okay. Very good. It would appear then that we would have everything for a package to Pete. What is the will of the Panel - are you all agreed to that? Okay. We will - I think as Bill Rogers used to say, I perceive that we have reached a consensus, and we shall therefore do that. I want to thank Wally and the other workgroups for buckling down and getting this together. With the lapse of time between meetings we have kind of lost continuity, and we really needed something to do, I think, before the Panel to get people back to working together and the workgroup system functioning. I think it works very well, and I want to thank you all for your efforts in that regard.

We have essentially completed all of the substantive issues before the Panel. We do have a problem with checkout time with the motel. The one thing we had scheduled additionally was a briefing from the Oil Shale Office staff on generally what's happening in oil shale and what has happened. We're at a point where we could pretty much wrap the meeting up this morning. I'd like to know again from the Panel what is your will? I don't want to have this briefing presented after lunch if there isn't going to be anybody here. We can have another briefing at our next meeting. What are the Panel's views, would you like to hear it next time and then we can really complete the meeting now. Any reaction to that?

MR. JOHN: Wy don't you take a show of hands and see how many will be here after lunch?

MR. DOMGAARD: Hank, I might comment that I think that we have been here the two days and we've had a chance to talk with one another and try to get the feel of what was happening. My position is that I think we are going to have to get checked out.

MR. ASH: Okay. How about a show of hands. How many of you expect you could be back after lunch? Would you like to have that presentation after lunch? The problem with now is that we need to get checked out here. I'm not sure how many people will come back at 1 o'clock.

MR. RUTLEDGE: Well Hank, I think as a suggestion I think Eric Hoffman was going to put it on, it is a slide show which shows what Colony is doing and the rest, and I'm going to have to be around, our crew is going to have to be around until later this afternoon anyway, and what we might do is if I can volunteer Eric he can just show up and if there are a couple of people interested or if there are 10 people interested he can go ahead and do it I think. And just leave it wide open.

MR. ASH: Let's do that. We will try to complete the panel business right now. It is essentially done. The only wrapup that we might have is plans for future meetings. Pete mentioned the upcoming schedule with C-b's revised draft and that's the only specific thing that will be calling for our next meeting. So that would be sometime after the first of the year. Are there any other items that Panel members would like to bring up, comments or questions?

MR. COOKE: I'd like to ask Pete if he has some kind of a time line on the approval on this DDP?

MR. RUTLEDGE: Well we set a timeframe or goal for ourselves. The lease requires me to act expeditiously but consider all things, and the goal is December 24 to go up or down.

(A white Christmas for White River or something.)

MR. ASH: Thank you all. I'd like to make sure that all the Panel members sign this so we will know just exactly who is here, the person who makes up the minutes isn't here and she won't know if we don't have your name.

Are there any other items of business to come before the Panel? Does White River have any last-minute comments you'd like to make or responses to anything we've covered?

MR. PRATT: Very quickly, we appreciate again this opportunity. We've made many notes of what the Panel has said in your workgroups, we've already been working with Pete to provide many of the answers to what he's asked and others, and will continue to do so. Thanks very much.

MR. ASH: Thank you. One other thing, I did want to thank Patricia for her comments about the Panel and the atmosphere of cooperation and working together that we have here. I think it is excellent too. We do thank you for your comments.

With that we shall adjourn this thirty-fourth meeting of the Oil Shale Environmental Advisory Panel. Thank you all for coming.

Meeting adjourned at 11:30 a.m., October 29